MAINE EMS

PREHOSPITAL TREATMENT PROTOCOLS

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AUTHORIZATION FOR PROTOCOLS

These protocols are issued by the Medical Direction and Practice Board and govern the practice of EMS licensees by the authority of 32 MRSA § 86.2-A. All Maine emergency physicians and the regional EMS programs were invited to participate in the review and adoption of these protocols through their MEMS Regional Councils.

The Regional Medical Directors agree that when treatments are adopted in their regions, they will be consistent with these protocols.

These protocols will be continually reviewed. New or revised protocols will be issued in adhesive-backed pages that can be easily placed over the protocol being replaced or on one of the blank pages provided at the end of the protocol book.

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DEFINITIONS

"ACLS" means advanced cardiac life support.

"Advanced Airway" means the skills of endotracheal intubation and use of other airway modalities such as LMA or Combitube performed only by those who have completed practical training in each of these skills as approved by their Regional Medical Control.

"AHA" means the American Heart Association

"ALS" (Advanced Life Support) means the ability to provide advanced level of medical care, which in the prehospital realm is critical care technician or paramedic. The ALS skills may include the following: IV access, advanced airway, cardiac monitoring, and/or oral or parenteral medications.

"ALS (Advanced Life Support) If Available" means that the patient shall receive the highest appropriate ALS intervention as soon as possible. The decision in this realm as to which interventions may be appropriate rests with the critical care technician or paramedic, if available. If any skills other than basic life support are deemed necessary or initially implemented, an ALS response should be sought, with simultaneous dispatch if possible. The use of a medical priority dispatching program, approved by the regional medical director, is encouraged. When this cannot happen, the crew in attendance should bring ALS care and the patient together in the fastest of three ways: (1) ALS back-up at the scene; (2) ALS back-up met en route; or (3) ALS by hospital staff in the emergency department if prehospital rendezvous is not possible.

The BLS providers on the scene may modify the ALS response as appropriate.

"ARC" means the American Red Cross

"Automatic Ventilation" Automatic ventilators (time-cycled, pressure controlled) approved by Maine EMS, may be used to assist ventilations when an endotracheal tube is in place by the intermediate, critical care, or paramedic provider.

"AVPU" means Alert, responsive to Verbal stimuli, responsive to Painful stimuli, or Unresponsive.

"BP" in these protocols refers to the *systolic* blood pressure

"Central Lines" means any IV catheter device, which gains access to a patient's central circulation. EMS providers may access an indwelling central line (such as a Port-a-cath): 1) in immediate life threatening situations when no other access is available, observing sterile technique, 2) and under MDPB/MEMS approved procedure/curriculum for accessing such devices.

"Critical Care Technician/Paramedic Back-up" means using an advanced life support resource when a presenting patient needs more than basic life support. As noted above, in the prehospital setting this usually indicates a critical care technician or paramedic response. An ALS back-up agreement should be written between EMS provider services routinely offering and accepting ALS back-up support. This would establish

medical/operational/liability expectations of both services. These protocols cannot mandate any service to routinely offer or receive back-up. However, any decision in this regard, particularly to refuse to offer or accept ALS back-up, should be grounded in reasonable medical, operational, or financial considerations and should be reviewed by the individual service's legal counsel.

"EDD" means an Esophageal Detector Device, which may be used to confirm endotracheal intubation.

"Emergency Department" means a hospital that provides an organized Emergency Service or Department that is available twenty-four (24) hours a day, seven (7) days a week and has the capability to provide On-Line Medical Control, to evaluate, treat, stabilize, and to refer to an appropriate outside resource all persons who present themselves for treatment.

"EMS Provider" means any person or service licensed by Maine EMS to provide emergency medical services.

"ETCO$_2$" means a colormetric device or value/capnography, which may be used to confirm endotracheal intubation.

"ET Flush" means a bolus of IV fluid (3-5 ml for pediatric patients; up to 10 ml for adults) into the endotracheal tube (ET) following ET administration of medications. Use of the ET for medication administration is to be considered a temporary route; IV access should be secured as soon as possible.

"Fluid Challenge" indicates maximum fluid administration achievable without pumps or other special equipment in the field setting. Specifically, running a large bore IV wide-open until 300-500 ml of fluid has been administered, and repeating this process until a BP greater than 90 mmHg systolic is achieved. A true IO bolus, at the appropriate dose with a syringe/3-way stop-cock assembly, is acceptable for pediatric patients. Pediatric boluses are 20 ml/kg, and may be repeated one time if patient remains hypotensive.

"Greater/Less Than" In these protocols ">" means "greater than," and "<" means "less than." Example: "BP <100" means "BP less than 100."

"IO" in these protocols, means intraosseous access. IO may be used if an IV is not established within 90 seconds and that patient is unstable.

"IV" means any balanced electrolyte solutions may be used, such as Lactated Ringers and Normal Saline. Normal Saline is the fluid of choice for patients with history of renal failure, not Lactated Ringers. Recommended catheter size for rapid fluid resuscitation in adults is 14-18 gauge. If rapid fluid resuscitation is not required, smaller catheter sizes or heparin/saline locks may be used. Heparin used for this procedure is not considered a medication.

"MDPB" means Maine EMS Medical Direction and Practice Board, which consists of the six Regional Medical Directors, a

physician representing the Maine Chapter of the American College of Emergency Physicians, and the State EMS Medical Director.

"NR" means a non-rebreather oxygen mask.

"O_2" means oxygen therapy as appropriate for patient.

"On Line Medical Control" ("OLMC") refers to the on-line physician/physician assistant/nurse practitioner who is licensed as such by the State of Maine, authorized by a hospital to supervise EMS providers and willing to accept responsibility for directing the actions of prehospital EMS personnel consistent with these protocols.

"Other Appropriate Destination" means a facility that has been approved by the Board of EMS to receive via ambulance patients who are in need of emergency care.

"Pediatric Patient" in these protocols, means prepubertal (without pubic, axillary, or facial hair).

"PPV" means positive pressure ventilation device such as (in order of preference): two-person bag-valve-mask technique with oxygen, one-person bag-valve-mask technique with oxygen, mouth-to-mask ventilation with oxygen, and mouth-to-mask ventilation without oxygen.

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FOREWORD

These protocols were developed for the following reasons:

1. To provide the EMS provider with a quick field reference, and
2. To develop written standards of care which are consistent throughout the state of maine.

Users of these protocols are assumed to have knowledge of more detailed and basic patient management principles found in EMS textbooks and literature appropriate to the EMS provider's level of training and licensure.

EMS providers are encouraged to contact OLMC in any situation in which advice is needed, not only in situations as directed by these written protocols.

To use these protocols as they were intended, it is necessary to know the philosophy, treatment principles, and definitions, which guided the physicians and other EMS providers who drafted these protocols:

1. **Assessment and treatment should very RARELY delay transport!** This is especially true for trauma patients and patients with chest pain. IV's should be started en route except in those situations where treatment at the scene is in the patient's best interest such as shock, with prolonged extrication, or a cardiac patient when full ACLS care is available. Delays in transport should be discussed with OLMC.
2. **Inability to establish voice contact with OLMC.** There are rare situations where the patient is unstable and delay in treatment threatens the patient's life or limb. If,

after good-faith attempts, the advanced EMT cannot contact OLMC, then the advanced EMT is authorized to use any appropriate treatment protocols as if they were standing orders. In such cases treatments must still be consistent with the advanced EMT's training and licensure. Continue attempts to contact OLMC and document these attempts on the patient run record.

3. **Transports and transfers.** During transports/transfers, ambulance crews will follow these MEMS protocols, including use of only those medications and procedures for which they are trained and authorized by protocol in their own region.
4. **Hospital destination choice.** If a patient needs care which the ambulance crew, in consultation with OLMC, believes cannot be provided at the most accessible hospital, the patient will be transported to the nearest facility capable of providing that care upon the patient's arrival. If, with OLMC consultation, a patient is believed to be too unstable to survive such a diversion, then the patient will be transported to the most accessible hospital with an emergency department. If OLMC contact is not possible, the ambulance crew is authorized to make this determination. OLMC cannot legally refuse these patients.
5. **Regional destination.** Each region has the authority to develop protocols, which designate the appropriate destination for patients transported from the scene.
6. **Treatments/drugs should be given in the order specified.** However, the MDPB recognizes that often treat-

ments are delivered simultaneously and more than one protocol may be used. OLMC may request treatments/drugs out of sequence for medical reasons.

7. **MEMS patient/run record** will be legible and thoroughly completed for each call, or for each patient when more than one patient is involved in a call. Services should strive to leave a completed copy of the patient/run report at the hospital before they leave. In rare circumstances, when it is not possible to complete this record before leaving the hospital, the services must complete this report and return the original copy to the hospital as soon as possible. The research copy of the patient/run record must be forwarded to Maine EMS (or their designee) by the 15th of the following month.
8. **Quality Assurance.** All EMS providers and services must be in compliance with the Regional and State Quality Improvement Program to the satisfaction of the Regional Medical Director.
9. **EMS providers who will be assuming the responsibility for patient care will be responsible for assessing the care provided before their arrival and for all levels of care** up to and including their level of training and licensure after their arrival. **If an EMS provider has not been trained in a particular treatment listed at his level, or that treatment is not within the EMS provider's scope of practice, the provider may not perform the treatment.**
10. **If there is a paramedic on scene that is willing to:**
    a. Tech the call in the patient compartment of

the ambulance.

b. Accept responsibility for the EMT-I's actions. Then paramedic may direct the EMT-I to administer medications that are within the EMT-I's scope of practice. This may be accomplished without contacting OLMC. If the paramedic is unwilling to accept the above responsibilities, then the EMT-I's **must contact OLMC before administering any medications.**

11. **Intermediate EMTs** are expected to follow these protocols within the limitations of the monitor/defibrillator available to them.

12. **Pulse oximetry** may be used for informational purposes only. Any alterations of treatment based on pulse oximetry readings must be approved by OLMC.

13. **If a treatment is listed as requiring Medical Control permission** at one level and is listed again without requiring OLMC permission at a higher level, the higher-level EMT need not seek OLMC permission.

14. **These protocols represent a consensus of the MDPB.** In unusual situations, **OLMC may deviate from these protocols if done in the patient's best interest.** The reasons for deviating from these protocols must be documented in the patient's chart. Under such circumstances, if the advanced EMT agrees, the advanced EMT will verify and will comply with OLMC orders, will fully document the deviation on the patient run record,

and will not consider the care rendered to be an emergency medical treatment to be routinely repeated.

15. **Once EMS personnel have arrived on the scene, they may interact with other medical personnel on the scene who are not a part of the organized EMS system responses in the following manner:**

a. Other Maine EMS licensees may be invited to provide care within their scope of practice by the person in charge of the responding EMS unit.

b. The patient's own physician, physician assistant, or nurse practitioner may direct care as long as they remain with the patient (in their absence, direction of care is subject only to these protocols and OLMC). You may assist this person within the scope of your practice and these protocols. Questions in this regard should be resolved by OLMC. You may show this person Protocol page "Black 1" ("Non-EMS System Medical Interveners") to assist with your explanation. Other health care providers in the home attending the patient (e.g. RN, LPN, CNA, Nurse Midwife, etc.) are bystanders who may be a valuable source of information. Any aid or treatment they wish to give must be authorized by OLMC. Any dispute over treatment/transport should be settled

by OLMC.

c. Other unsolicited medical interveners must be Maine licensed physicians, nurses, nurse practitioners or physician assistants whose assistance you request. Protocol page "Black 1" describes this, and should be shown to such interveners.

16. **Graduates of a wilderness EMT course, with a current certification,** that has been approved by MEMS may apply the principles of care taught in that course as defined.

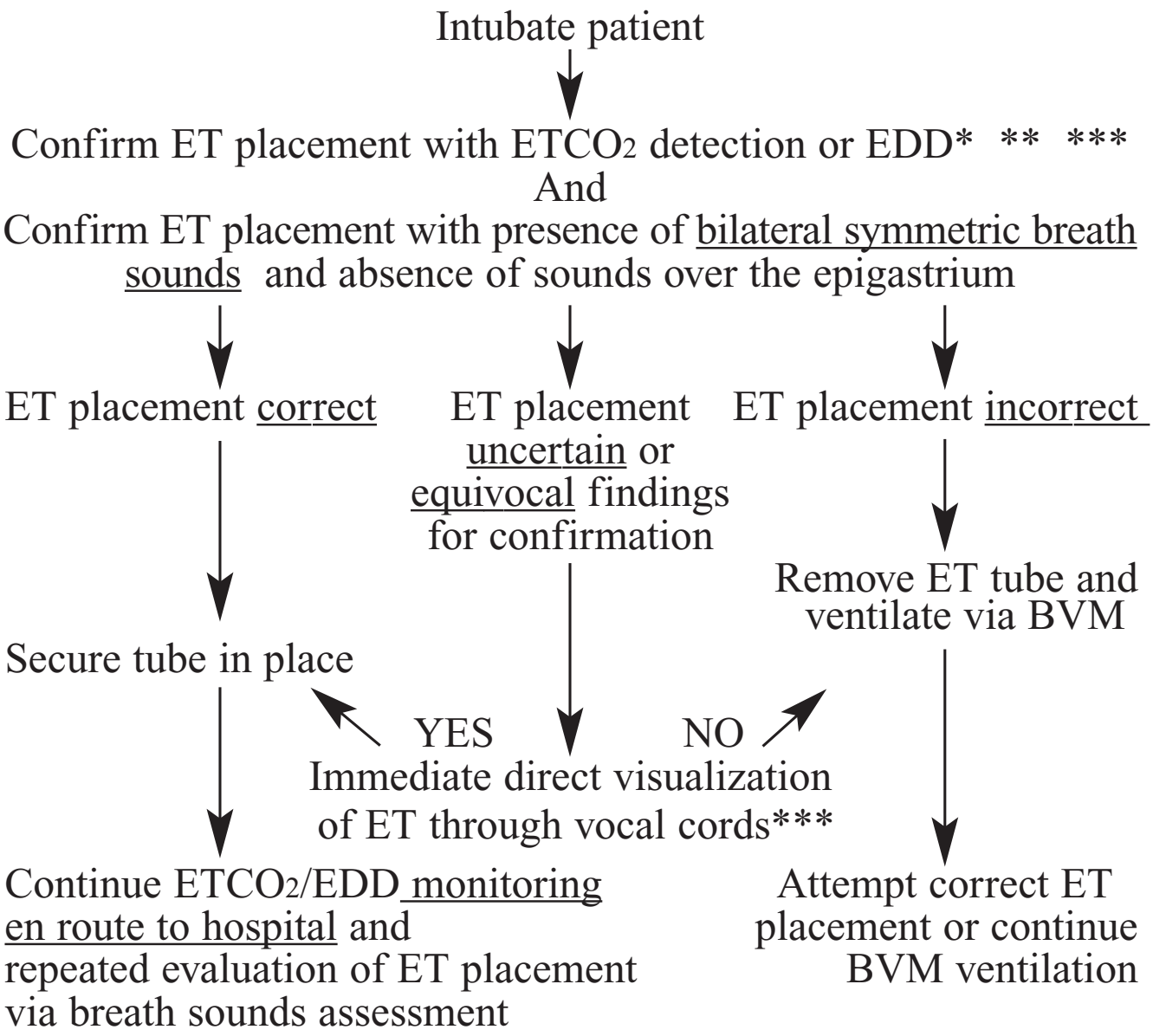
17. **Unless otherwise indicated,** any treatment included in these protocols may be repeated after reassessment **and** with OLMC permission.

18. **External Pacing** (where indicated in these protocols) should be performed if a pacer is available. Pacers are not required equipment.

19. **Oxygen supplementation** will be by nasal cannula or non-rebreather mask as appropriate.

20. **MAST** (or Pneumatic Anti-Shock Garment – PASG) – If MAST is available, contact OLMC for any usage (there is no compelling indication for the routine use of MAST).

CONFIRMATION AND MONITORING OF ENDOTRACHEAL INTUBATION PATIENTS



* For cardiac arrest patients, consider placement of the ET tube as well as lack of pulmonary circulation in the interpretation of $ETCO_2$ findings.
** Depending on device used, $ETCO_2$ devices and EDDs may not be applicable to the pediatric patient.
***Nasotracheally-intubated patients should be assumed to have an incorrect placement if findings of breath sounds or $ETCO_2$ /EDD results are uncertain or equivocal.

Adult Airway Algorithm

Patient with respiratory distress

↓

Trial of oxygen therapy
- consider Albuterol Nebulizer if possibly a bronchospastic episode.

↓

If unable to maintain adequate oxygenation/ventilation
- consider suctioning, assess for foreign body or tongue obstruction
- consider placing nasopharyngeal or oropharyngeal airway, and trial of bag-valve-mask support if deemed appropriate.

↓

If still unable to maintain adequate oxygenation/ventilation
- consider orotracheal intubation;
- or nasopharyngeal intubation if no facial trauma or other contraindications

↓

If unable to intubate, reassess if maintaining adequate oxygenation/ventilation
- consider changing tube size and/or laryngoscope blade

↓

If still unable to intubate, again reassess if maintaining adequate oxygenation/ventilation
- consider using facilitating device if available such as gum elastic bougie, intubating stylet, tube changer, or digital intubation

or

If this fails, reassess if maintaining adequate oxygenation/ventilation
- consider an attempt to place an LMA

or

If this fails, reassess if maintaining adequate oxygenation/ventilation
- consider attempt to place Combitube

↓

If this fails, reassess if maintaining adequate oxygenation/ventilation
- consider surgical airway (Cricothyrotomy) only in those with significant head, face and/or neck trauma or unrelieved upper airway obstruction. In general, a surgical airway is unlikely to benefit an adult patient without the aforementioned problems.

If successful, confirm placement and continuous monitoring:
- auscultation
- chest wall movement
- lack of air sounds over the stomach
- end-tidal CO_2 or EDD
- pulse oximetry

Pediatric Airway Algorithm

Patient with respiratory distress

↓

Trial of oxygen therapy
- consider Albuterol Nebulizer if possibly a bronchospastic episode.

↓

If unable to maintain adequate oxygenation/ventilation
- consider suctioning, assess for foreign body or tongue obstruction
- consider placing nasopharyngeal or oropharyngeal airway, and trial of bag-valve-mask support if deemed appropriate.
- BVM IS THE PREFERRED METHOD OF AIRWAY SUPPORT IN THE PEDIATRIC PATIENT

↓

If still unable to maintain adequate oxygenation/ventilation
- consider orotracheal intubation;
- or nasopharyngeal intubation if no facial trauma or other contraindications

↓

If unable to intubate, reassess if maintaining adequate oxygenation/ventilation
- consider changing tube size and/or laryngoscope blade

↓ **or**

If still unable to intubate, again reassess if maintaining adequate oxygenation/ventilation
- consider using facilitating device if available such as gum elastic bougie, intubating stylet, tube changer, or digital intubation

↓ **or**

If this fails, reassess if maintaining adequate oxygenation/ventilation
- consider an attempt to place an LMA

↓

If this fails, reassess if maintaining adequate oxygenation/ventilation
- consider surgical airway (Cricothyrotomy) only in those patients greater than 8 years of age with significant head, face and/or neck trauma or unrelieved upper airway obstruction. In general, a surgical airway is unlikely to benefit a pediatric patient without the aforementioned problems.
- consider needle cricothyrotomy in patients that have epiglottitis or unrelieved upper airway obstruction.

If successful, confirm placement and continuous monitoring:
- auscultation
- chest wall movement
- lack of air sounds over the stomach
- end-tidal CO_2 or EDD
- pulse oximetry

RESPIRATORY DISTRESS WITH BRONCHOSPASM

(COPD, Emphysema, Chronic Bronchitis, Asthma)

CAUTION: RESPIRATORY DISTRESS MAY BE DUE TO MULTIPLE OTHER CAUSES FOR WHICH OTHER TREATMENTS MAY BE INDICATED, INCLUDING THE FOLLOWING:

Pulmonary Edema "see page Blue 7"
Anaphylaxis "see page Gold 1"
Tension Pneumothorax "see page Green 11"

BASIC

1. O_2 as appropriate.

2. If needed, assist ventilations with PPV using 100 % O_2.

3. Request ALS if available.

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4. For EMT-Basic level providers – assist with self-administered bronchodilator inhaler. Tell OLMC the name of the inhaler. OLMC will prescribe number of puffs.

INTERMEDIATE

5. Cardiac monitor.

6. Manage airway as needed. "See Blue 1 & 2"

7. Contact OLMC to administer Albuterol, 2.5 mg by nebulization (use 3 ml premix or 0.5 ml of 0.5% solution mixed in 2.5 ml of normal saline).

The EMT-I, in consultation with OLMC, may modify the Paramedic response as appropriate.

CRITICAL CARE / PARAMEDIC

8. Adult/Pediatric –

a. Albuterol 2.5 mg by nebulization. **May repeat 1 time.**
b. Albuterol MDI (multi-dose inhaler), 2-10 puffs with spacer. **May repeat 1 time.**

---

9. Contact OLMC for the following OPTIONS:

A. Repeated or continuous Albuterol by nebulization or inhaler.
B. Pediatric – Epinephrine 0.01 mg/kg (0.01 ml/kg of a 1:1,000 solution IM to a maximum of 0.3 mg.)
C. Adult – Epinephrine 0.3 mg IM of 1:1,000 solution every 20 minutes.

RESPIRATORY ARREST

(with/without obstruction)

BASIC

1. Follow AHA respiratory arrest procedure utilizing 100% O_2 with assisted ventilation (PPV). Use the AHA foreign body obstructed airway procedure as necessary.
2. Request ALS if available.

INTERMEDIATE / CRITICAL CARE

3. Magill forceps if indicated.
4. Manage airway as needed. “See Blue 1 & 2”
5. Cardiac monitor.
6. IV en route.

PARAMEDIC

7. With complete obstruction of the airway not relieved by other maneuvers, perform cricothyrotomy/ cricothyrostomy.

PULMONARY EDEMA

(without shock)

Do not give nitroglycerin if patient has taken erectile dysfunction medication within the past 72 hours. Contact OLMC for options.

If initial systolic BP < 100 "See Red 21, Cardiogenic Shock".

BASIC

1. O_2 as appropriate. Assist ventilations (PPV) if needed.
2. Assess for shock. If BP > 100, place in sitting position.
3. Request ALS if available.

INTERMEDIATE

4. Cardiac monitor.
5. IV en route.
6. Manage airway as needed. "See Blue 1 & 2"

---

7. Contact OLMC for administration of nitroglycerin 0.4 mg or 1 spray SL. Repeat two times at 5 minute intervals if systolic BP > 100. If patient has had nitroglycerin before and no IV established, and systolic BP > 100, then OK to give nitroglycerin. Do not administeer nitroglycerin if patient has taken erectile dysfunction medication within the past 72 hours.

CRITICAL CARE / PARAMEDIC

8. Nitroglycerin 0.4 mg or 1 spray SL. Repeat two times at 5 minute intervals if systolic BP > 100. If patient has had nitroglycerin before and no IV established, and systolic BP > 100, then OK to give nitroglycerin. Do not administeer nitroglycerin if patient has taken erectile dysfunction medication within the past 72 hours.
9. Furosemide (*Lasix*) 40 mg IV.

Contact OLMC for OPTIONS:

10. Fentanyl 25-50 micrograms IV.

CHEST PAIN

(Suspected cardiac origin)

Do not give nitro if patient has taken erectile dysfunction medications within the past 72 hours.
Contact OLMC for options

BASIC

1. O_2 – as appropriate.
2. Treat for shock if indicated.
3. Request ALS if available.
4. If patient has not taken an aspirin and has no allergy to aspirin: administer chewable aspirin 162 mg (or 324 mg depending on hospital preference) PO, if not contraindicated by allergy, bleeding/anticoagulant history, or ulcer disease. ALS back-up still mandatory despite use of aspirin.

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5. For EMT–Basic level providers – Contact OLMC for the OPTION of assisting with the administration of patient's own nitroglycerin.

INTERMEDIATE

6. IV en route.
7. Cardiac monitor.
8. Chewable aspirin, 162 mg (or 324 mg depending on hospital preference) PO, if not contraindicated by aspirin allergy, bleeding/anticoagulant history, or ulcer disease.

9. Contact OLMC for administration of:
    a. Nitroglycerin 0.4 mg SL or 1 spray, SL. May repeat two times at 5 minute intervals if BP >100. If patient has had nitroglycerin before and no IV established, and systolic BP >100, then OK to give nitroglycerin. Do not administer nitroglycerin if patient has taken erectile dysfunction medications within past 72 hours.

The EMT-I, in consultation with OLMC, may modify the Paramedic response as appropriate.

CRITICAL CARE / PARAMEDIC

10. Nitroglycerin 0.4 mg or 1 spray, SL. May repeat two times at 5 minute intervals if BP > 100. If patient has had nitroglycerin before and no IV has been established, and systolic BP >100, then OK to give nitroglycerin. Do not administer nitroglycerin if patient has taken erectile dysfunction medication within past 72 hours.
11. Chewable aspirin, 162 mg or (324 mg depending upon hospital preference) PO, if not contraindicated by allergy, bleeding/anticoagulant history, or active ulcer disease.

12. Contact OLMC for OPTIONS:
    b. Additional nitroglycerin.
    c. Fentanyl 25-50 micrograms IV.

13. Treat underlying arrhythmia.
14. Obtain 12 lead EKG en route if equipment is available.

CHEST PAIN CHECKLIST

For chest pain of suspected cardiac origin, initiate therapy per protocol "Red 1 and 2", including the early use of aspirin and nitroglycerin if not contraindicated.
Use the Chest Pain Checklist or local equivalent if available. Report the information as soon as practical to the receiving ED.

1. Is systolic BP < 180 mm Hg?	**YES**	NO
2. Is diastolic BP<100 mm Hg?	**YES**	NO
3. Has pain persisted for > than 15 minutes?	**YES**	NO

---

4. CVA or other serious central nervous system problems in preceding 6 months?	YES	**NO**
5. Surgery or major trauma in preceding 2 weeks?	YES	**NO**
6. Any bleeding problems? (e.g. ulcers, hemophilia)	YES	**NO**
7. Pregnant?	YES	**NO**

You may copy and use this page as your checklist, or you may use a check-list recommended by your usual receiving hospital which contains at least these questions.

GUIDELINES TO THE PREHOSPITAL USE OF 12-LEAD EKG BY THE ALS PROVIDER

(Intermediate, Critical Care or Paramedic)

1. Prehospital 12-lead EKG is intended as an optional device and is encouraged for increasing diagnostic information regarding the chest pain/cardiac patient.
2. Acquisition of a 12-lead EKG should be considered in all patients with chest pain or a potential cardiac complaint/diagnosis.
3. **Acquisition of the 12-lead EKG should not delay patient transport or the initiation of chest pain/cardiac treatment protocols.**
4. Transmission of 12-lead EKG or presentation of prehospital 12-lead EKG to treating personnel at the receiving ED is intended to augment patient triage and facilitate rapid identification of a potential thrombolytic candidate.

AUTOMATIC
EXTERNAL DEFIBRILLATOR
(AED)

Pediatric AED "See Pink 13"

(AED is intended for adults and children > 1 year of age. Before using in children between 1-8 years of age, please refer to the following Pediatric AED use section. Contact OLMC for any other situations.)

1. Verify cardiac arrest, time of arrest, and request ALS if available.
2. **Begin CPR** while applying AED.
3. Apply the leads, (no leads within 6 inches of pacemaker/ defibrillator product) remove all medication patches from patient's skin, clean skin, clear patient, and activate machine.
4. Follow AED machine's instruction and deliver up to three (3) shocks, if needed. For AEDs which ask the operator to set shock level, use 1st shock: 200 J, 2nd shock: 200-300 J, 3rd and subsequent shocks: 360 J.
5. If patient regains pulse, assist respirations if needed, monitor pulse and turn off AED (unless AED's instruction manual contradicts this). If patient arrests again, the AED should be programmed to defibrillate at the level which was previously successful, if applicable to specific AED.

---

6. If the patient remains in cardiac arrest, continue CPR for at least 60 seconds, then repeat sequence of three shocks at the maximum Joules for this patient, if possible. Transport, **then** contact OLMC.

---

7. If Intermediate/Critical Care/Paramedic arrives with manual defibrillation capabilities, discontinue the AED and use the manual defibrillator according to the appropriate protocol. Any defibrillations required by the protocol, which have already been given by the AED, need not be repeated. (Continue with treatment called for in protocol following the initial defibrillations).

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CARDIAC ARREST OR ARRHYTHMIAS

BASIC

1. O_2 as appropriate. Ventilate if patient is in respiratory arrest.
2. **CPR if cardiac arrest.**
3. Attach AED if cardiac arrest "See Red 5." Do not withhold CPR while waiting for defibrillation equipment.
4. Request ALS if available.

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

5. Cardiac monitor and treat arrhythmias following the appropriate algorithm and your training and level of licensure.
    - **a.** Ventricular Fibrillation "Red 8"
    - **b.** Ventricular Tachycardia "Red 8 or 10"
    - **c.** Asystole "Red 12"
    - **d.** Pulseless Electrical Activity "Red 14"
    - **e.** Bradyarrhythmias and Heart Block "Red 16"
    - **f.** Supraventricular Tachycardia "Red 18"
    - **g.** Premature Ventricular Ectopy (PVCs) "Red 19"

6. Manage airway as needed, "See Blue 1 & 2," and establish IV (Intermediates en route), per specific arrhythmia protocol.

Note: The algorithms for cardiac arrest or arrhythmias in the following pages reflect the MEMS Medical Direction and Practice Board's interpretation of ACLS guidelines, as they should be used in the prehospital setting.

VENTRICULAR FIBRILLATION / PULSELESS VENTRICULAR TACHYCARDIA

INTERMEDIATE / CRITICAL CARE / PARAMEDIC (up to level of training)

Check Pulse – If No Pulse

↓

Precordial thump (if cardiac arrest witnessed)

↓

CPR Until Defibrillator or AED is Available

↓

Check Monitor for Rhythm or Analyze with AED
If VF or Pulseless VT

↓

Defibrillate up to 3 times if necessary (200 J, 200 J to 300 J, 360 J, or equivalent biphasic: Accelerating or fixed per mfr setting/recommendations)*
If severe hypothermia go to "Yellow 11"

↓

CPR if No Pulse

↓

Intubate if possible **, ***

↓

Establish IV

↓

Epinephrine, 1:10,000, 1 mg IV Push (2 mg ET Flush) repeat every 3 –5 minutes

↓

Defibrillate: 1 X 360 J or equivalent biphasic

↓

Lidocaine, 1.5 mg/kg IV Push (2 – 3 mg/kg ET Flush)

↓

Defibrillate: 1 X 360 J or equivalent biphasic

↓

↓

Lidocaine, 1.5 mg/kg IV Push, may be repeated
After 10 minutes. ET dose is 2 – 3 mg/kg.

↓

Defibrillate: 1 X 360 J or equivalent biphasic

↓

Magnesium 2 gm IV Push

↓

Defibrillate: 1 X 360 J or equivalent biphasic

CRITICAL CARE / PARAMEDIC

1. Contact OLMC for OPTION of Sodium Bicarbonate and orders on continuing ACLS or termination of resuscitation.

2. Upon successful conversion from V-Tach or V-Fib (if no 2nd degree Type II AV block or 3rd degree AV block is present) contact OLMC for options of:
   - **a.** Lidocaine bolus
   - **b.** Lidocaine drip

---

* If return of spontaneous circulation (ROSC) is established, contact OLMC and follow appropriate protocol for patient rhythm.

** Intermediate EMTs should continue CPR, transport, establish IV en route, and contact OLMC. If using manual defibrillator, may attempt defibrillation X 3 per training.

***See Endotracheal Intubation protocol: "Blue 1 & 2"

WIDE COMPLEX TACHYCARDIA (PROBABLE VENTRICULAR TACHYCARDIA)

INTERMEDIATE / CRITICAL CARE / PARAMEDIC (up to level of training)

No Pulse; Treat as Ventricular Fibrillation/Pulseless V-Tach "See Red 8"

Pulse is Present

BP>100
Alert/comfortable

↓

O_2 Nonrebreather Mask

↓

IV*

↓

Contact OLMC for OPTION of:

↓

Lidocaine 1.5 mg/kg IV Push

↓

Lidocaine 0.5-0.75 mg/kg IV Push Every 5 – 10 minutes Until VT resolves

BP < 100 or Chest Pain or shortness of breath or altered LOC

↓

O_2 Nonrebreather Mask

↓

IV*

↓

Contact OLMC for OPTION of:

A. Adult: Midazolam (*Versed*) 3-5 mg IV; or Lorazepam (*Ativan*) 2-4 mg IV.
B. Fentanyl 25-50 micrograms IV.
C. Synchronized cardioversion**

↓

Unconscious and BP < 100 or unconscious with Pulmonary edema

↓

O_2 Nonrebreather/ Bag Valve Mask

↓

Defibrillate** (unsynchronized cardioversion)

↓

100 Joules

↓

200 Joules

↓

Or 3 mg/kg given

Contact OLMC if no response for Adenosine or Lidocaine

DC Cardioversion if unstable at anytime

100 Joules

200 Joules

300 Joules

360 Joules

Contact OLMC for further ACLS options

300 Joules

360 Joules

Intubate

IV*

Contact OLMC for further ACLS options

* At this point, EMT-Intermediates should monitor pulse, transport, establish IV en route, and contact OLMC.

** "See Gray 28"

ASYSTOLE

Should be confirmed in two leads.
If rhythm is unclear and possible ventricular fibrillation, treat as VF.

Intermediate / Critical Care / Paramedic
(Up to level of training)

CPR

↓

Intubate if possible *

↓

Establish IV

↓

Consider treatable causes

(Hypoxia, Hyperkalemia, Hypokalemia, Pre-existing Acidosis, Drug Overdose, Hypothermia)
If available, external pacing for witnessed onset of asystole

↓

Epinephrine, 1:10,000, 1 mg IV Push (2 mg ET Flush)
repeat every 3 – 5 min.

↓

Atropine, 1 mg IV Push (2 mg ET Flush)
repeat every 3-5 min. up to 0.04 mg/kg (0.08 mg/kg/ET)

Contact OLMC for the following OPTIONS:

A. Sodium Bicarbonate
B. Termination of resuscitation **

---

* EMT-Intermediates should continue CPR, transport, establish IV en route, and contact OLMC. "See Blue 1 & 2."

** Consider termination of efforts for unknown down time, irreversible signs of death, no response after 10 minutes of efforts, or unwitnessed arrest event.

PULSELESS ELECTRICAL ACTIVITY

PEA INCLUDES:
Electromechanical Dissociation (EMD)
Pseudo – EMD
Idioventricular Rhythms
Ventricular Escape Rhythms
Brady Asystolic Rhythms
Post Defibrillation Idioventricular Rhythms

INTERMEDIATE / CRITICAL CARE / PARAMEDIC
(Up to level of training)

Document Rhythm

↓

Continue CPR

↓

Intubate if possible *

↓

Establish IV

↓

IV Normal Saline wide open

↓

Epinephrine, 1:10,000; 1 mg IV
(2 mg ET Flush)
repeat every 3 – 5 min.

↓

If HR < 60, Atropine 1 mg IV Push (2 mg ET Flush) Repeat every 3 – 5 min. until maximum of 0.04 mg/kg (0.08 mg/kg ET)

↓

Contact OLMC

A. Consider treatable causes: hyperkalemia, acidosis, and massive acute myocardial infarction, hypovolemia, hypoxia, cardiac tamponade, tension pneumothorax, hypothermia, massive pulmonary embolism, drug overdoses such as tricyclics, digitalis, beta blockers, and calcium channel blockers.

B. Consider termination of efforts for unknown down time, irreversible signs of death, no response after 10 minutes of efforts, or unwitnessed arrest event.

* At this point EMT-Intermediates should continue CPR, transport, establish IV en route, and contact OLMC. "See Blue 1 & 2"

BRADYCARDIA
(Heart Rate < 60 beats/min.)
CRITICAL CARE / PARAMEDIC

Signs or Symptoms: Blood pressure < 100 mm Hg, premature ventricular contractions, altered mental status, chest pain, dyspnea, or cyanosis/pallor.

↓

No

↓

O_2

↓

As appropriate

↓

Observe & Transport

Yes

↓

O_2 as appropriate

↓

Atropine, 0.5 – 1 mg IV*, **
Should be given in repeat doses
Every 3 – 5 minutes up to a max dose
0.04 mg/kg**

↓

Apply external pacer

Initiate transcutaneous pacing (TCP) for patients who do not respond to Atropine; if serious signs or symptoms, do not delay TCP while awaiting IV access or for Atropine to take effect. Consider premedicating with Midazolam (*Versed*) 3-5 mg IV; or Lorazepam (*Ativan*) 2-4 mg IV or Fentanyl 25-50 micrograms IV.
Notify OLMC as soon as possible.

↓

Continued signs and symptoms?

↓

No
↓
Observe & Transport

Yes
↓

Contact OLMC for the following OPTIONS:

A. Repeat Atropine

B. Dopamine (800 mg in 500 ml,or premix). Titrate to maintain BP > 100 (5 – 20 mcg/kg/min)

NOTE: Application of TCP should be considered if deterioration is anticipated because of the following:

A. Observed sinus pauses.

B. Episodes of 2nd degree Type II, or 3rd degree AV block.

* Transplanted denervated hearts will not respond to Atropine. Proceed to pacing, catecholamine infusion, or both.

** Atropine should be used with caution in 2nd degree Type II AV block and new 3rd degree AV block with wide QRS complexes.

SUPRAVENTRICULAR TACHYCARDIA
(with narrow QRS complexes)

INTERMEDIATE

1. Cardiac monitor (if unconscious and pulseless then treat as pulseless VT – "Red 8").
2. IV en route.

CRITICAL CARE / PARAMEDIC

---

3. Contact OLMC for the following OPTIONS:
   A. Valsalva maneuver.
   B. Adenosine 6 – 12 mg IV rapid push, followed by rapid saline bolus.
   C. Premedication with Midazolam (*Versed*) 3-5 mg IV: or Lorazepam (*Ativan*) 2-4 mg IV or Fentanyl 25-50 micrograms IV and synchronized cardioversion.*

---

* Cardioversion should initially be 50 Joules, then 100 Joules, then 200 Joules, then 300 Joules, then 360 Joules for adults.

"See Gray 28"

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PREMATURE VENTRICULAR ECTOPY (PVCs)

INTERMEDIATE

1. Cardiac monitor
2. IV en route if PVCs confirmed on monitor

CRITICAL CARE / PARAMEDIC

---

3. Contact OLMC to discuss Lidocaine 1.5 mg/kg IV slow push no more than 50 mg/minute if the patient has chest pain suggesting MI, sinus rate > 60 BPM*, and any one of the following:

    A. PVCs more than 6/min. or
    B. Multifocal PVCs or
    C. Sequential (coupling) PVCs or
    D. PVCs near T wave (R on T) or
    E. 3 or more PVCs in a row (i.e. nonsustained VT).

---

4. If PVCs continue, contact OLMC for any of the following OPTIONS:

   A. Lidocaine drip. “See Gray 33”

   B. Repeat Lidocaine bolus.

* If rate less than 60/minute, PVCs may be “escape PVCs” rather than PVCs from an irritable focus and Lidocaine is contraindicated. In this situation contact OLMC for the OPTION of Atropine 0.5 mg IV.

CARDIOGENIC SHOCK

BASIC

1. O_2 as appropriate.
2. Request ALS if available.

INTERMEDIATE

3. Cardiac Monitor.
4. IV TKO en route.

---

5. Contact OLMC with following information:
   vital signs, lung sounds, cardiac rhythm, pedal edema assessment for OPTION of:
   A. Fluid challenge.

CRITICAL CARE / PARAMEDIC

---

6. Contact OLMC for the following OPTION:
   A. Dopamine (800 mg in 500 ml or premix). Titrate to maintain systolic BP > 100.

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ALLERGY / ANAPHYLAXIS

BASIC

1. O_2 as appropriate.
2. If shock present, treat.
3. Request ALS if available.
4. Assess degree of allergic reaction:
   A. Mild – generalized hives and wheezing.
   B. Severe – life threatening respiratory compromise (examine for swollen tongue, uvula, etc.) or BP < 100.
5. Consider local measures to prevent absorption.

---

6. Contact OLMC
   A. Assist administration of patient's own anaphylaxis kit.
   B. Administer an adult or pediatric (as applicable). Epinephrine Autoinjector if the service is authorized and the personnel so trained.

INTERMEDIATE

7. IV en route.
8. Cardiac monitor.
9. If shock present, perform fluid challenge.

---

10. Contact OLMC for Option of administration of Epinephrine 0.3mg, 1:1,000 IM.

EMT-I, in consultation with OLMC, may modify the Paramedic response as appropriate.

CRITICAL CARE / PARAMEDIC

11. Manage airway as needed. "See Blue 1 & 2"
12. For SEVERE reaction: (life threatening respiratory compromise or BP < 100)
    A. Epinephrine:
        1. Adult: 0.3 mg (0.3 ml of 1:1,000) IM
        2. Pediatric: 0.01 mg/kg (0.01 ml/kg of 1:1,000) IM, to maximum dose of 0.3 mg.
    B. Diphenhydramine (Benadryl) 25 – 50 mg IV, IM.
    C. Albuterol 2.5 mg by nebulization; Consider repeat times 1 as needed or nebulizer of 5 ml of 1:1,000 Epinephrine.

Contact OLMC for repeat options.

ADULT COMA

(Decreased Level of Consciousness)
(Assess for trauma, drugs, diabetes, breath odor,
needle tracks, medical alert tags)
(If known diabetic, "see page Gold 5"-Diabetic Emergencies)

BASIC

1. Immobilize spine if indicated.
2. O_2 and assist ventilation if needed.
3. Request ALS if available.

INTERMEDIATE

4. Manage airway as needed. "See Blue 1 & 2"
5. IV en route.
6. Draw blood as IV established or do finger stick, to measure blood glucose using MEMS approved technique/device.
7. Cardiac monitor.
8. If shock present, perform fluid challenge.

---

9. Contact OLMC for the following options:
   A. If blood glucose < 80 mg/dl administer Dextrose 25 gm (50 ml of 50% solution IV).
   B. Naloxone (*Narcan*) 0.1-2 mg IV, ET, IM **only give if respirations < 12 per minute and you suspect narcotic overdose,** titrate to improve respiratory drive; patients abruptly fully awakened may become combative, or suffer acute narcotic withdrawal symptoms. Some drugs such as Propoxyphene, Talwin, or Methadone may require high doses.

CRITICAL CARE / PARAMEDIC

10. Administer the following:
    A. Thiamine 100 mg IV.
    B. If blood glucose < 80 mg/dl administer Dextrose 25 gm (50 ml of 50% solution IV).
    C. Naloxone (*Narcan*) 0.1-2 mg IV, ET, IM **only give if respirations < 12 per minute and you suspect narcotic overdose,** titrate to improve respiratory drive; patients abruptly fully awakened may become combative, or suffer acute narcotic withdrawal symptoms. Some drugs such as Propoxyphene, Talwin, or Methadone may require high doses.

---

11. Contact OLMC for the following OPTIONS:
    A. Repeat bolus of D_{50} IV.
    B. Repeat bolus of Naloxone (*Narcan*) 0.1-2 mg IV, ET or IM.
    C. Glucagon 1 mg IM (if IV unavailable for administration of Dextrose).

ADULT DIABETIC EMERGENCIES

(For Patients With Known Diabetes)

Pediatric Diabetic Emergencies "See Pink 9"

BASIC

1. O_2 as appropriate.
2. Request ALS if available.
3. If patient is conscious and able to swallow, give glucose orally.

Glucose paste is to be administered as soon as possible in patients presenting with the signs/symptoms of diabetic emergency.

INTERMEDIATE

4. IV en route.
5. Draw blood as IV established or do finger stick, to measure blood glucose using MEMS approved technique/device.
6. Cardiac monitor.

---

7. If blood glucose is < 80 mg/dl, contact OLMC for OPTION of administering Dextrose 25 gm (50 ml of 50% solution IV).

EMT-I, in consultation with OLMC, may modify the Paramedic response as appropriate.

CRITICAL CARE / PARAMEDIC

8. Dextrose
    A. If blood glucose < 80 mg/dl administer Dextrose for adult coma and diabetic emergencies.
    B. If IV unavailable, administer Glucagon 1 mg IM.

9. Repeat glucose measurement.

---

10. Contact OLMC for OPTION of repeating Dextrose.

Guideline for Diabetic Patient Signoff

It is in the best interest of a patient treated for hypoglycemia to continue to the hospital in the company of EMS personnel. If a competent diabetic patient refuses to be transported to the hospital and is then "signed off" by a provider, then all of the following conditions must be met and documented (Basic EMT's are encouraged to contact OLMC while awaiting ALS arrival or if OLMC is the Basic EMT's closest ALS):

- The provider (EMT-I, CC, or EMT-P) feels that it is appropriate not to transport this patient.
- OLMC must be consulted in the decision process.
- The patient is an insulin-dependent diabetic (IDDM, insulin-dependent diabetes mellitus), and NOT on oral hypoglycemics.*
- This is NOT the first hypoglycemic crisis for this patient.
- The patient is afebrile.
- The patient responds to a normal blood sugar level (> 95 mg/dl) after 1 amp of D_{50}.
- The patient will be left in the care of a responsible adult.
- The patient agrees to food intake and is able to recheck their own blood sugar.

* Oral blood-glucose lowering drugs include: Diabeta (Glyburide), Diabinese (Chlorpropamide), Glucotrol (Glipizide), Glynase (Glyburide), Micronase, Orinase (Tolbutamide), Tolinase (Tolazamide)

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ADULT SEIZURES

Pediatric Seizures "See Pink 3"

BASIC

1. O_2 as appropriate.
2. Left lateral recumbent position and protect patient from injury.
3. Spinal immobilization if indicated. "See Green 6"
4. Request ALS if available.

INTERMEDIATE

5. Manage airway as needed. "See Blue 1 & 2"
6. Cardiac monitor.
7. IV en route.
8. Draw blood as IV established or do finger stick, to measure blood glucose using MEMS approved technique/device.

---

9. Contact OLMC for following options:
   A. If blood glucose < 80 mg/dl administer Dextrose 25 gm (50 ml of 50% solution IV).
   B. Naloxone (*Narcan*) 0.1-2 mg IV, ET, IM **only give if respirations < 12 per minute and you suspect narcotic overdose,** titrate to improve respiratory drive; patients abruptly fully awakened may become combative, or suffer acute narcotic withdrawal symptoms. Some drugs such as Propoxyphene, Talwin, or Methadone may require high doses.

CRITICAL CARE / PARAMEDIC

10. Lorazepam (*Ativan*) 2-4 mg IV; or Midazolam (*Versed*) 3-5 mg IV.

---

11. Contact OLMC for the following OPTIONS:
    A. If unable to establish IV or if repeat dose of Lorazepam (*Ativan*) or Midazolam (*Versed*) is necessary.
    B. Naloxone (*Narcan*) 0.1-2 mg IV, ET, IM. **if respirations < 12 per minute and you suspect narcotic overdose,** titrate to improve respiratory drive; patients abruptly fully awakened may become combative, or suffer acute narcotic withdrawal symptoms. Some drugs such as Propoxyphene, Talwin, or Methadone may require high doses.
    C. Thiamine 100 mg IV, IM.
    D. IV Dextrose 25 gm if serum blood glucose <80 mg/dl.
    E. Glucagon 1 mg IM (if IV access is unavailable for administration of Dextrose).
    F. Contact OLMC if repeat of any of these options is necessary.

ACUTE STROKE

Acute stroke should be suspected if any of the following have appeared in the last few hours or days: weakness on one side of face, weakness in one arm or leg, abnormal speech (slurred, incoherent, absent).

"See Gold 3 Adult Coma if warranted"

"See Gold 5 Diabetic Emergencies if warranted"

BASIC

1. Administer O_2 as appropriate.
2. Request ALS if available.

INTERMEDIATE

3. Manage airway as needed. "See Blue 1 & 2"
4. Cardiac monitor.
5. IV en route.
6. Draw blood as IV established or do finger stick, to measure blood glucose using MEMS approved technique/device. **If blood glucose < 80 mg/dl and patient is able to swallow, administer Glucose paste.**

---

7. Adult. If blood glucose is < 80 mg/dl, contact OLMC for OPTION of administering Dextrose 25 gm (50 ml of 50% solution) IV.

---

8. IV on scene.
9. **If blood glucose < 80 mg/dl,**
    A. Administer Dextrose 25 gm (50 ml of 50% solution) IV or
    B. Glucagon 1 mg IM if IV unavailable.

Contact OLMC for the following OPTION:

10. Repeat bolus of Dextrose or Glucagon.

NOTE: En route, as time allows and without interfering with treatment, assess patient for potential thrombolytic therapy at hospital (see checklist on next page, or local equivalent if available). Advise ED of results.

STROKE CHECKLIST

For patients with neurologic deficit and possible stroke, the following information should be collected and reported as soon as practical to the receiving ED (no delay in the usual assessment and treatment of this condition should be caused by collection of this information).

Attempt to obtain an exact time the patient was last known to be at baseline or deficit-free and awake. If patient awoke with symptoms, this time will be when the patient went to sleep.

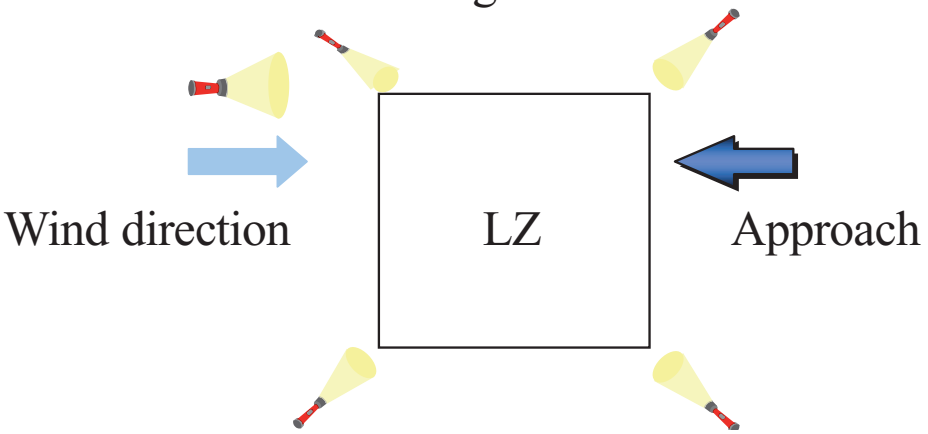
1. Age > 45?	**YES**	NO
2. Symptom duration < 2 hours?	**YES**	NO
3. Blood glucose between 60 and 400 mg/dl?	**YES**	NO
4. Based on exam, patient has only UNILATERAL weakness?	**YES**	NO
5. History of seizures?	YES	**NO**
6. At baseline, patient is wheelchair bound or bedridden?	YES	**NO**
7. Prior CVA or other serious CNS problems?	YES	**NO**
8. Surgery or major trauma in preceding 2 weeks?	YES	**NO**
9. Any bleeding problems?	YES	**NO**
10. Pregnant?	YES	**NO**

If the answers to all of these questions are those highlighted (1 – 4 yes; 5 –10 no), this patient may be a candidate for thrombolytic therapy and should be expedited to the ED. Inform the ED staff of these results as soon as practical.

You may copy and use this page as your checklist or you may use a checklist recommended by your usual receiving hospital, which contains at least these questions.

Minimum Landing Zone (LZ) Area
100’ x 100’

Must mark wind direction at night



Aircraft Arrival

- Identify Scene and LZ Incident Command
- Establish radio communications prior to landing
- State Fire or State EMS are the default frequencies
- Advise pilot of terrain conditions, vertical obstructions, and wind direction
- Secure LZ and identify personnel to guard tail rotor guards
- Notify pilot if patient is packaged and ready for hot load

Operating Around Helicopter

- Approach aircraft with crew escort only
- Approach aircraft 90 degrees to door only
- Avoid tail boom and rotor at all times
- Eye and ear protection should be worn
- Do not carry anything above shoulder height
- Secure all loose medical and personnel equipment
- Spotlights, headlights, and/or handheld lights should not be pointed directly at the helicopter.

Terrain:

- Flat, firm, free of debris
- Consider dust and snow
- LZ should be down wind of accident scene
- Free of vehicles and people
- Any markers must be able to withstand 60 mph winds
- Approach path only from downslope of aircraft

Vertical Obstructions:

- Mark towers, antennas, poles, tall trees with vehicle
- Check the wind. Helicopter must land and take off into the wind
- Ideal= clear approach and departure angle 8:1 (200' to 25' vertical obstruction)

Wires:

- Electrical and utility wires are greatest single hazard to helicopters
- Search LZ area for wires
- Mark all wires, high-tension lines, guide wires with vehicles
- Notify pilot of all wires in proximity to landing zone

Lighting

- Never shine light directly at aircraft
- All emergency lights on until aircraft overhead
- Shut down vehicle strobes and white lights when aircraft on approach
- Keep working lights on minimum

Aircraft Departure

- Keep LZ clear for at least 5 minutes after helicopter departure
- In case of emergency the helicopter may have to return to LZ
- Keep communications open with pilot

REMEMBER-EVERYONE IS RESPONSIBLE FOR SAFETY

TRAUMA TRIAGE PROTOCOL
PATIENT WITH BLUNT OR PENETRATING TRAUMA

ASSESSMENT #1
(ASSESS PHYSIOLOGIC COMPROMISE)

Determine
Glasgow Coma Scale "Green 7"
Respiratory Rate
Systolic Blood Pressure

CALCULATE REVISED TRAUMA SCORE (RTS) "Green 9" **OR** Pediatric Trauma Score (PTS) "Green 10"

IS RTS<11, OR PTS<8?

NO

YES

Go to nearest Regional Trauma Center (CMMC, EMMC, MMC) if total transport time is less than 45 minutes, otherwise go to closest ED which is a trauma system participating hospital; any questions, then contact OLMC

ASSESSMENT #2
ASSESS ANATOMIC INJURY

DO ANY OF THE FOLLOWING CONDITIONS EXIST?

a. Paralysis
b. Penetrating injury to chest, abdomen, head, or neck
c. Two or more proximal long bone fractures
d. Unstable pelvic fracture
e. Open or depressed skull fracture
f. Major burn of 25% or greater associated with trauma
g. Flail Chest

NO

YES

ASSESSMENT #2A

a. Amputation proximal to wrist or ankle

NO

YES

ASSESSMENT #3
ASSESS FOR PRESENCE OF HIGH ENERGY TRANSFER SIGNATURE

a. Associated fatality in the same vehicle
b. Ejection from the automobile
c. Falls > 20 feet
d. Rollover
e. Auto-pedestrian or auto-bike with > 5 mph impact
f. Pedestrian thrown or run over by vehicle
g. Motorcycle crash > 20 mph or with separation of rider from cycle
h. High speed auto crash
    1. Initial speed > 40 mph
    2. Major auto deformity > 20 inches
    3. Intrusion into passenger compartment > 12 inches

NO **YES**

ASSESSMENT #4
HIGH RISK INDICATORS

a. Age < 5 or > 55
b. Cardiac or respiratory disease
c. Insulin dependent diabetes, cirrhosis or morbid obesity
d. Pregnancy
e. Immunosuppressed patients
f. Patient with bleeding disorder or an anticoagulant

NO **YES**

TRANSPORT TO TRAUMA SYSTEM PARTICIPATING HOSPITAL

CONTACT OLMC

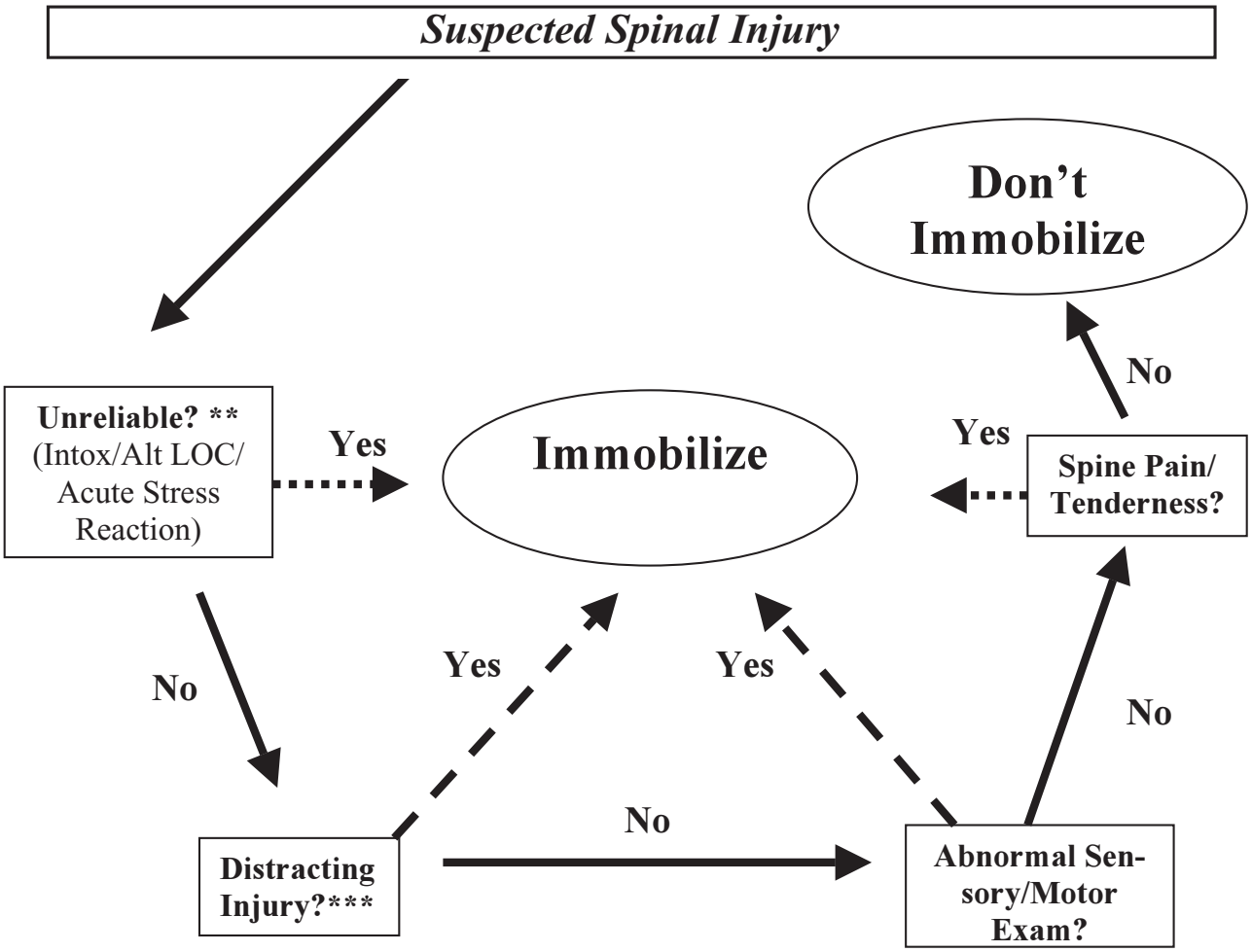
1. OLMC considers patient transport to Regional Trauma Center (RTC) using following guidelines:

    a. If patient would best be served by RTC and transport time less than 45 minutes, then OLMC may direct you to the RTC.
    b. If patient requires RTC but transport time greater than 45 minutes or patient requires life saving interventions, patient to go to the closest ED.

2. If upon arrival in ED;
    a. Facility is not a RTC and;
    b. Patient continues to satisfy criteria of assessments One and Two, and;
    c. Patient can be stabilized for further transport, then receiving ED clinician should provide only life-saving procedures (avoiding unnecessary diagnostics) prior to transport to RTC unless he/she judges clinical situation to not warrant such transfer.

If prehospital providers are unable to definitively manage the airway, maintain breathing or support circulation, begin transport to most accessible hospital and simultaneously request ALS intercept or tiered response.

SPINE ASSESSMENT PROTOCOL



***MVC applies to crashes of all motorized vehicles: e.g. automobile, motorcycle, snowmobile, etc.**
**** Clearance of the spine requires the patient to be calm, cooperative, sober, and alert.**
*****Distracting injury includes any injury that produces clinically apparent pain that might distract the patient from the pain of a spine injury.**

This protocol may be used by MEMS licensees, at the EMT Basic level or above, who have successfully completed the MEMS Spine Injury Management Course.

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GLASGOW COMA SCALE (GCS)

The Glasgow Coma Scale or Score provides a practical means for monitoring changes in the level of consciousness. It is based upon eye opening, verbal, and motor responses. If each response is given a number (high for normal, low for impaired), the total responsiveness of the patient can be expressed by the sum of the numbers. Because the scale is physiologic, it is dynamic and subject to change as the patient's condition changes. Therefore, it must be repeated frequently. The lowest score is 3 and the highest is 15. When using the scale, it is best to DESCRIBE each response rather than just using numbers. A painful stimulus is rubbing the sternum with the knuckles or pinching an extremity.

Adult	Pediatric	Score
Eye Opening Response:	Same as Adult	
Open spontaneously on own		4
Open to voice command		3
Open to painful stimuli		2
Eyes remain closed		1
Best Motor Response:	Same as Adult	
Moves on command		6
Pushes painful stimuli away		5
Withdraws from painful stimuli		4
Decorticate (flexion)		3
Decerebrate (extension)		2
No motor response to pain		1
Best Verbal Response:		
Oriented	Appropriate words or social smile, fixes and follows	5
Confused	Cries, but consolable	4
Inappropriate words	Persistently irritable	3
Incomprehensible sounds	Restless, agitated	2
No sounds	None	1
Total		3-15

REVISED TRAUMA SCALE

RESPIRATORY RATE	10 – 29 = 4 > 30 = 3 6 – 9 = 2 1 – 5 = 1 NONE = 0	Respiratory Points
SYSTOLIC BP	> 90 = 4 76 – 89 = 3 50 – 75 = 2 1 – 49 = 1 NO PULSE = 0	+ Systolic BP Points
CONVERT GLASGOW COMA SCORE TO TRAUMA POINTS	GCS: 13 – 15 = 4 9 – 12 = 3 6 – 8 = 2 4 – 5 = 1 3 = 0	+ Trauma Points
		= REVISED TRAUMA SCORE

PEDIATRIC TRAUMA SCORE

SCORE →	+2	+1	-1
COMPONENT ↓			
Weight	> 44 LBS (> 20 KG)	22 – 44 LBS (10 – 20 KG)	< 22 LBS (< 10 KG)
Airway	Normal	Maintainable Invasive	Unmaintainable
Blood Pressure	> 90mm Hg	50–90 mm Hg	< 50mm Hg
Level of Consciousness	Completely Aware	Obtunded or any LOC	Comatose
Open Wound	None	Minor	Major or Penetrating
Fractures	None	Closed Fracture	Open or Multiple Fractures

TENSION PNEUMOTHORAX

BASIC

1. O_2 as appropriate.
2. Assist ventilations (PPV) if needed.
3. Request ALS if available.

INTERMEDIATE / CRITICAL CARE

4. IV en route.
5. If shock present, perform fluid challenge.
6. Cardiac monitor.
7. Request ALS if available.

PARAMEDIC

8. Chest decompression.

NOTE: Chest decompression will be performed on the involved side using a 2-inch, 14 gauge IV catheter at the second or third intercostal space on the mid-clavicular line, or fifth or sixth space on the mid-axillary line.

AMPUTATIONS

BASIC

1. Control bleeding.
2. Treat for shock, if indicated, and 0_2 as appropriate.
3. Cover stump with moist, sterile dressing.
4. Rinse severed part briefly and gently with sterile saline to remove debris.
5. Wrap severed part in sterile gauze, moisten with sterile saline (do not soak), place in a water-tight container. Place container on ice (do not use dry ice). Do not put part directly on ice. If necessary, use ice packs to provide some level of cooling.
6. Request ALS if vital signs unstable, and for pain management.

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

7. IV en route.
8. If shock present, perform fluid challenge.
9. Cardiac monitor.
10. See "Green 19" (Pain Management) for pain treatment algorithm.

HEAD TRAUMA

BASIC

1. Immobilize entire spine on long spinal immobilization device.
2. O_2 as appropriate. If necessary, airway management as per "Blue 2 or Blue 3".
3. If necessary to support ventilation, provide PPV at 10 – 12 breaths per minute (BPM) unless patient showing signs and symptoms of cerebral edema/herniation. Once patient begins showing signs and symptoms of cerebral edema/herniation, ventilate the patient at 20 BPM. See description below.
4. If not in shock, elevate head of long spinal immobilization device while maintaining full spinal immobilization.
5. Treat for shock if indicated.
6. Request ALS if available and patient has altered mental status or abnormal vital signs.

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

7. IV en route.
8. If shock present, perform fluid challenge.
9. Cardiac monitor.
10. Manage airway as needed. "See Blue 1 & 2, and 3"

Ventilation Clarification

Signs and Symptoms of Herniation – A patient who has a mechanism of injury consistent with a head injury who has signs of rising ICP (decreasing GCS, decreasing pulse, increasing blood pressure, irregular respirations and asymmetric or dilated pupils) and begins posturing (either decorticate or decerebrate).

Ventilation Rates – Personnel must be careful not to over ventilate head injured patients. If the head injured patient is not showing signs and symptoms of herniation, provide PPV at 10 – 12 BPM (one breath every 5 – 6 secs.).
If they are showing signs and symptoms of herniation and you have the ability to measure end-tidal $C0_2$, provide PPV to maintain a $C0_2$ level of 34 – 38. If you don't have $C0_2$ measurement capabilities, provide PPV at a rate not to exceed 20 BPM (one breath every 3 secs.).

HYPOVOLEMIC SHOCK

If history of illness or mechanism of injury consistent with signs/symptoms of shock (elevated pulse, elevated respiratory rate, cool/pale skin, altered LOC, anxiety, sweating or lowered BP) then transport as soon and as efficiently as possible.

If the cause of the shock is:

Anaphylaxis, "See Gold 1"
Cardiogenic, "See Red 21"
Tension Pneumothorax "See Green 11"

BASIC

1. Control bleeding.
2. O_2 as appropriate.
3. Elevate legs.
4. If patient in third trimester of pregnancy:
   A. Place patient on left side if no head or spinal cord injury.
   B. In shock secondary to trauma, immobilize spine and elevate right side of long spinal immobilization device (manually displace uterus to left if elevation not possible).
5. Request ALS if available.

INTERMEDATE / CRITICAL CARE / PARAMEDIC

6. IV en route.
7. Cardiac monitor.

8. If shock present, i.e. BP < 90 in an adult < 65 years of age, then give a fluid challenge.

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9. Contact OLMC if patient is > 65 years of age for a fluid challenge order.

If the cause of hypovolemic shock is felt to be secondary to acute unstable pelvic fracture, contact OLMC for consideration of using MAST as a pelvic stabilization device.

BURNS

BASIC

1. Remove burned clothing and jewelry unless adhered to patient.
2. O_2 as appropriate.
3. Give highest priority to airway problems and major trauma.
4. Manage shock if indicated.
5. If burn area is **less than 10%** Body surface area (BSA), cover with dressing soaked in normal saline or other commercially prepared moist burn dressing.
6. If burn area is **greater than 10%** BSA, cover with dry dressing, sterile sheet, or commercially prepared dry dressing.
7. Request ALS if available; where there is a possibility of respiratory compromise, shock, burns greater than 10% BSA or need for pain medications.

INTERMEDIATE

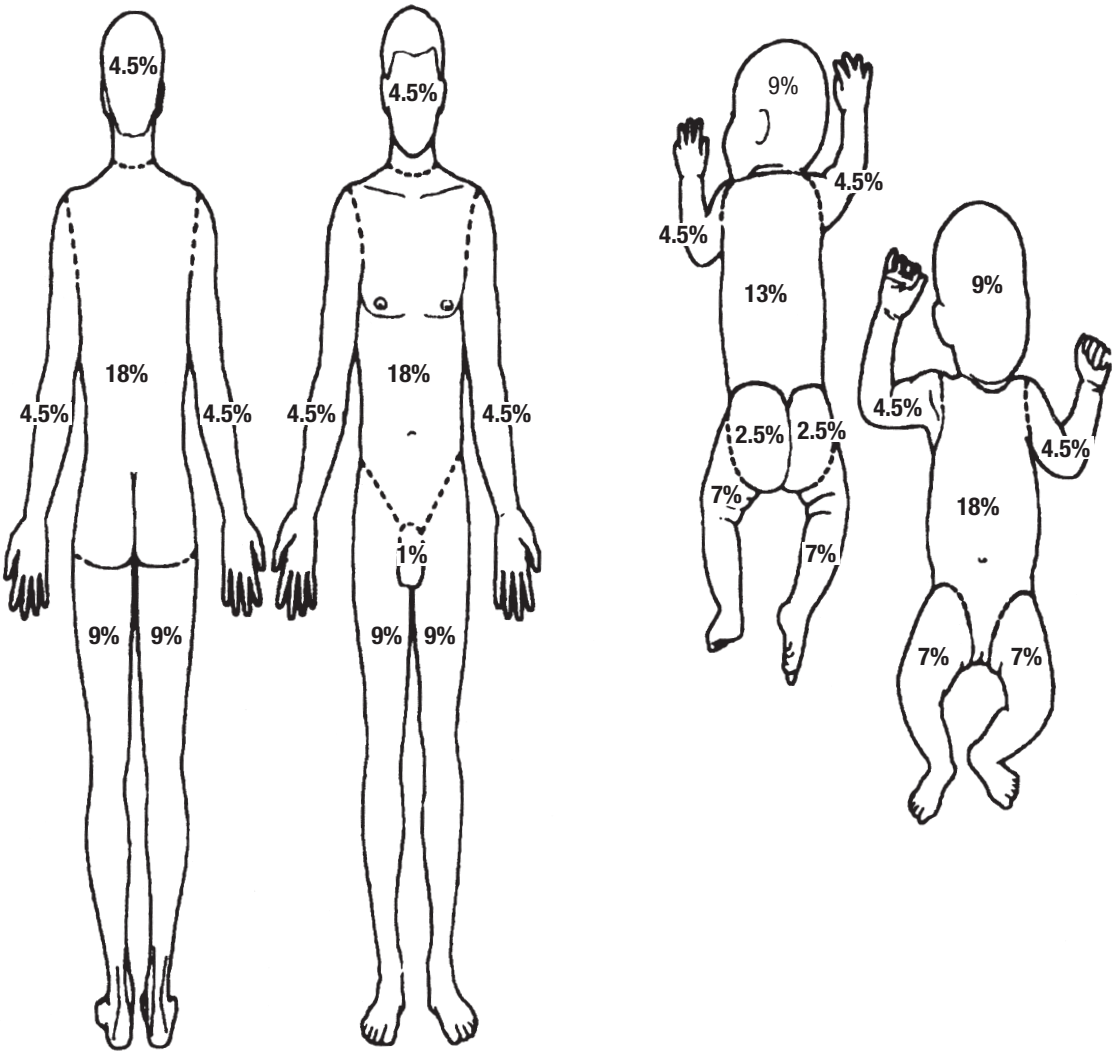
8. IV en route (avoid placing IV in burned skin if possible).
9. Cardiac Monitor (avoid placing leads on burned skin).
10. If shock present, perform fluid challenge.

CRITICAL CARE / PARAMEDIC

11. "See Green 19" (Pain Management) for pain treatment algorithm.

RULE OF NINES

ESTIMATION OF BURNED BODY SURFACE (PERCENT)



Remember: The patient's palm (hand minus fingers) is about 1% of the patient's body surface area.

PAIN MANAGEMENT

BASIC

1. Reassurance.
2. Splinting as needed, with inline stabilization. Consider ice application in isolated extremity trauma if hypothermia/frostbite not an issue.
3. Request ALS if available for pain management.

INTERMEDIATE

4. Consider IV access in preparation for ALS pain management.

CRITICAL CARE / PARAMEDIC

5. **Isolated extremity trauma** may use the following, otherwise go to number "6"
    a. For isolated extremity trauma in a stable patient, consider the use of Fentanyl 25-50 micrograms IV push every 10 minutes titrated to effect with maximum dose of 200 micrograms.

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    b. Contact OLMC if further dosing needed or vital signs are not stable. For dosage question (such as in pediatrics), abnormal vital signs, coincident drug use (including alcohol) by patient, if IV cannot be established or if not isolated extremity trauma, contact OLMC before administering medication.

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c. For nausea or vomiting, administer Promethazine (*Phenergan*) 12.5 mg IV and may repeat once after 10 minutes if needed. For dosage question (such as in pediatrics), abnormal vital signs, coincident drug use (including alcohol) by patient, if IV cannot be established or if not isolated extremity trauma, contact OLMC before administering medication.

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6. **Contact OLMC** before using any narcotic, antiemetic, or anxiolytic for multiple trauma or isolated trauma involving head, spine, or torso (including thorax, abdomen, and pelvis). Use narcotics, antiemetics, and anxiolytics with caution in pediatrics, in those with hypotension or bradypnea, or if coincident drug use (including alcohol) by patient. If IV cannot be established, OLMC can help with IM drug doses.
   a. Consider the use of Fentanyl 25-50 micrograms IV push every 10 minutes titrated to effect with maximum dose of 200 micrograms as long as vital signs are stable.
   b. For nausea or vomiting, administer Promethazine (*Phenergan*) 12.5 mg IV and may repeat once after 10 minutes if needed.
   c. Consider self-administered fixed dose of 50% nitrous oxide/oxygen mixture delivered by commercially available device (such as Nitronox).

NAUSEA / VOMITING

Protocol for nausea/vomiting in a setting of pain or pain management in the conscious adult. Treatment includes correction of volume depletion.

BASIC

1. Position patient in position of comfort. The need for pain management and antiemetic medications may occur in patients whose condition requires ALS back up.
2. Request ALS if available.

INTERMEDIATE

3. If signs of dehydration or hypotension, establish large bore IV. Contact OLMC for rate. 

CRITICAL CARE / PARAMEDIC

4. When using narcotics for pain control or when pain alone seems to trigger vomiting, consider the use of antiemetics.

    A. Promethazine (*Phenergan*) 12.5 mg IV or IM.

May repeat with OLMC permission. 

TOXINS

Call Poison Control (1-800-222-1222) to receive guidance on patient care and so that information on the toxin can be faxed to ED prior to patient's arrival.

This protocol refers to toxins that are:

- ingested
- inhaled
- absorbed
- injected (envenomation)

This protocol refers to toxins that cause:

- systemic effects
- local effects
- both systemic and local effects

I. GENERAL ASSESSMENT

What Identify specific toxin and amount of exposure if possible. Bring pill bottles, vomitus samples, MSDS sheets, etc.
When Identify time of exposure if possible.
Why Identify reason for exposure if possible.

II. GENERAL TREATMENT

BASIC

1. Scene safety: protect rescuers and patients from immediate danger and contamination. Toxic exposures might require special precaution, including HAZMAT precautions, before patient treatment begins.
2. O_2 as appropriate.
3. Clear airway as necessary with suction and position.
4. Ventilate as necessary.
5. Consider local measures for treatment.
6. Request ALS if available.

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

6. Manage airway as necessary. "See Blue 1 & 2"
7. If patient hypotensive – IV en route – perform fluid challenge.

III. SPECIFIC TREATMENTS TO REMOVE AND DILUTE TOXINS

Initiate measures to remove and dilute toxin.

For Ingested Toxins:
Call Poison Control (1-800-222-1222).

BASIC

1. O_2 as appropriate.
2. Clear airway as necessary with suction and position.
3. Ventilate as necessary.
4. Consider local measures for treatment.

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

5. Manage airway as necessary. "See Blue 1 & 2"
6. If patient hypotensive – IV en route – perform fluid challenge.

Contact OLMC for OPTION:

1. Activated charcoal without sorbital 1 gm/kg PO.
2. Contraindications to charcoal include:
   - ingestion of caustic
   - hydrocarbons
   - seizures
   - patient is unable to swallow/protect airway

For Inhaled Toxins:

Call Poison Control (1-800-222-1222).

BASIC / INTERMEDIATE / CRITICAL CARE / PARAMEDIC

1. Remove the patient from exposure site.
2. Spontaneous or assisted ventilation with clean air.
3. Ventilate with 100% oxygen if possible.

For Absorbed Toxins:

Call Poison Control (1-800-222-1222).

BASIC / INTERMEDIATE

1. Flush skin vigorously and continuously with water.
2. Flush eyes continuously with water, saline, or LR

CRITICAL CARE / PARAMEDIC

3. Consider pain medication. “See Green 19,” or if analgesic for eye pain “See Yellow 16.”

For Injected Toxins:

Call Poison Control (1-800-222-1222).

There is no effective method of removing/diluting toxins that have already been injected through the skin. Avoid further exposure to injected toxins.

IV. ANTIDOTES FOR SPECIFIC TOXINS

For Cyclic Antidepressants

Call Poison Control (1-800-222-1222).

Some examples of cyclic antidepressants include: Amitriptyline, Desipramine, Doxepin, Imipramine, Nortriptyline, **notify OLMC.**

BASIC / INTERMEDIATE

1. Hyperventilate.
2. Manage airway as needed. “See Blue 1 & 2”
3. Request ALS if available.

CRITICAL CARE / PARAMEDIC

In patients with known cyclic overdose, with low BP or seizures or ventricular dysrhythmias or wide QRS complex:

4. Administer Sodium Bicarbonate 1 mEq/kg IV, and contact OLMC if further direction needed for conditions such as arrhythmias.

For Narcotics:

Call Poison Control (1-800-222-1222).

BASIC

1. Administer O_2 as appropriate.
2. Secure open airway by (positioning) or (airway maneuvers) ie: (chin lift or jaw thrust) as appropriate. "See Blue 1 & 2"
3. Request ALS if available.

INTERMEDIATE

4. IV.
5. Manage airway as needed. "See Blue 1 & 2"
6. Contact OLMC for Naloxone (*Narcan*) 0.1-2 mg IV, ET, IM **only give if respirations <12 per minute,** titrate to improve respiratory drive; patients abruptly fully awakened may become combative, or suffer acute narcotic withdrawal symptoms. Some drugs such as Propoxyphene, Talwin, or Methadone may require high doses.
7. Cardiac Monitor.

CRITICAL CARE / PARAMEDIC

8. Naloxone (*Narcan*) 0.1-2 mg IV, ET, IM **only give if respirations < 12 per minute,** titrate to improve respiratory drive; patients abruptly fully awakened may become combative, or suffer acute narcotic withdrawal symptoms. Some drugs such as Propoxyphene, Talwin, or Methadone may require high doses.

For Organophosphate/carbamate:
(WARNING: SKIN CONTACT WITH THIS TOXIN CAN BE FATAL TO RESCUER)
Call Poison Control (1-800-222-1222).

If you suspect a Bio-Terrorism/WMD threat. "See Gray 21 & 37"
In unstable patients with known organophosphate/carbamate poisoning:

BASIC

1. O_2 as appropriate.
2. Request ALS if available.

INTERMEDIATE

3. IV.
4. Manage airway as appropriate. "See Blue 1 & 2"
5. Cardiac Monitor.

CRITICAL CARE / PARAMEDIC

6. Administer Atropine 2 mg IV.

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7. Contact OLMC for OPTIONS:
   A. Repeat dose, as necessary, every 5 minutes.
   B. Administer other selected antidotes.

MILD HYPOTHERMIA

Predicating treatment based on rectal temperature.

ASSESSMENT: Reduced core temperature 90º to 95º F (32º –35º C) with a shell to core shunt.

- Cool, pale, cyanotic skin
- Cold diuresis
- Reduced shell function causing clumsiness with fine motor tasks
- Cardiac function is stable
- Shivering
- Abnormal mental status

TREATMENT:

BASIC

Since mild hypothermia causes no significant cardiac instability, any method of field rewarming is generally safe:

1. Field Rewarming:
   A. Reduce the cold challenge by protecting the patient from the cold environment by insulating from the ground, protecting from the wind, and eliminating heat loss by evaporation by removing wet clothing once sheltered.
   B. Reverse the cold challenge by adding external heat and moving the patient to a warm environment. External heat may be added by placing hot packs at

axilla, groin, head, and neck—be sure to protect cold skin from direct contact with hot packs.

C. Administer oxygen [humidified and heated to a maximum of 108º F (42º C) if available,—heating oxygen without humidifying will not aid in rewarming].
D. Increase heat retention by adding insulation. Remember to insulate the head and neck and cover the patient with a vapor barrier, such as a large plastic tarp or large plastic bag—do not cover the face. You may cover the patient's face with a light fabric to reduce heat loss.
E. Increase intrinsic heat production by light exercise if the patient is dry. Calorie stores must be adequate.
F. If the patient can safely swallow and protect his airway, increase calorie stores by giving liquid laced with sugar—sugar is more important than the temperature of the liquid. Do not allow alcohol or tobacco use.

2. Treat associated conditions.
3. Treat cardiac problems and cardiac arrest as per normothermic protocols.

INTERMEDIATE/CRITICAL CARE/PARAMEDIC

4. Warmed IV fluid may be necessary, and give as bolus therapy (250 –500 ml in normal adult; 20 ml/kg in peds), with repeating once if necessary. Use normal saline heated to 104º-108º F (40º-42º C) if available.

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5. Contact OLMC if a 3rd bolus is necessary.

Moderate to Severe Hypothermia with Signs of Life
(Pulse or Respirations)

Assessment

Moderate Hypothermia: **Reduced core temperature between 82º to 90º F (28º-32ºC)** and patient's ability to rewarm without external heat source is limited.

- Cold, pale, beginning of cyanosis
- Cold diuresis
- Resuscitation efforts (such as CPR) follow normothermic guide lines if the core temperature is above 86º F (30º C)
- Below 86ºF (30ºC), shivering stops
- Loss of consciousness

Severe Hypothermia: **Reduced core temperature below 82ºF (28ºC)** and patient has no ability to rewarm without external heat source.

- Cold, frozen, pale, cyanotic skin, rigidity
- Unconscious
- Vital signs reduced or absent
- Severe risk of mechanically stimulated ventricular fibrillation (VF)
- Below 77ºF (25ºC), spontaneous ventricular fibrillation/cardiac arrest

Treatment

Contact OLMC immediately.

The severely cold heart is sensitive to a variety of stimuli, and fatal arrhythmias can be caused by incorrect or carelessly applied treatment efforts. However, these patients can be saved by immediate and aggressive internal rewarming techniques.

BASIC

1. Treat patients very gently—Do Not rub or manipulate extremities, or attempt to remove wet clothing without cutting them off.
2. Treat as per "Mild Hypothermia," but with the following changes.

a. Do Not allow the patient to sit or stand until rewarmed.
b. Do Not give the patient oral fluids or food.
c. Do Not attempt to increase heat production with light or any exercise.

INTERMEDIATE/CRITICAL CARE/PARAMEDIC

3. Warmed IV fluid may be necessary, and give as bolus therapy (250-500 ml in normal adult; 20 ml/kg in peds), repeating once if necessary. Use normal saline heated to 104º-108º F (40º-42ºC) if possible.

4. Contact OLMC if a 3rd bolus is necessary.

Severe Hypothermia with No Signs of Life

(or Moderate with Temp < 86º F)

Assessment: As above for "Severe Hypothermia," but no pulse or respirations are found. Check for pulse and respirations for 60 seconds.

Resuscitation should not be initiated if the following conditions are found:

1. Submerged in cold water for more than 1 hour.
2. Core temperature of less than 50ºF (10ºC).
3. Obvious fatal injuries, such as decapitation.
4. Frozen body (not just peripheral frostbite), such as ice formation in the airway.
5. Chest wall so stiff that compressions for CPR not possible.
6. Rescuers exhausted or in a dangerous situation.

Treatment

Contact OLMC immediately.

The severely cold heart is sensitive to a variety of stimuli, and fatal arrhythmias can be caused by incorrect or carelessly applied treatment efforts. However, these patients can be saved by immediate and aggressive internal rewarming techniques.

BASIC

1. If the patient is not breathing, **give 3 minutes of rescue breathing after the initial 60 second pulse/respiration check.** After 3 minutes, check for pulse and respirations again for 60 seconds. If the patient is not breathing and has no pulse, start chest compressions only if transportation is not available within 3 hours.
2. For rescue breathing, use mouth-to-mask breathing or bag-valve- mask breathing at a reduced rate to prevent hyper-

ventilation—consider ventilating the adult patient at 6 breaths per minute (1/2 the normal rescue breathing rate).

3. If an Automated External Defibrillator (AED) is available, then proceed with one set of stacked shocks if the machine deems that this is indicated. If the core temperature cannot be determined or is above 86ºF, then follow guidelines for resuscitation as if the patient were normothermic. If the patient's core temperature is below 86º F (30º C), discontinue use of AED after the initial 3 shocks until the patient's core temperature has reached 86º F (30ºC).

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4. Contact OLMC:

   a. If CPR has been provided in conjunction with rewarming techniques for more than 30 minutes without the return of spontaneous pulse or respiration, contact OLMC for recommendations.

   b. If contact with OLMS is not possible, consider termination of resuscitation efforts after 60 minutes of CPR if no return of spontaneous pulse or respiration, and contact OLMC as soon as possible.

INTERMEDIATE

5. Warmed IV fluid may be necessary and given as bolus therapy (250-500 ml in normal adult; 20 ml/kg in peds), with repeating once if necessary. Use normal saline heated to 104º-108º F (40º-42ºC) if possible.

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6. Contact OLMC if a 3rd bolus is necessary.

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7. If an manage airway device needs to be placed (indications the same in normothermic and hypothermic patients), preoxygenate and adequately **ventilate for 3 minutes prior to placement of device.** Also, avoid hyperventilation as noted above—**give 6 breaths per minute in an adult** (1/2 the normal breathing rate).

CRITICAL CARE/PARAMEDIC

8. If ventricular fibrillation is present on the monitor, then one series of stacked defibrillations is OK. Shivering can mimic ventricular fibrillation. If the core temperature cannot be determined or is above 86ºF, then follow guidelines for resuscitation as if the patient were normothermic. If the patient's core temperature is below 86º F (30º C), discontinue defibrillation after the initial 3 shocks until the patient's core temperature has reached 86ºF (30ºC).
9. Antiarrhythmic medication or cardiac medications in general should be held until the patient is warm (> 86º F) and undergoing rewarming.

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10. Contact OLMC:
    a. If resuscitation has been provided in conjunction with rewarming techniques for more than 30 minutes without the return of spontaneous pulse or respiration, contact OLMC for recommendations.
    b. If contact with OLMC is not possible, consider termination of resuscitative efforts and contact OLMC as soon as possible.

HYPERTHERMIA

HEAT EXHAUSTION – Volume depletion due to sweat loss.

ASSESSMENT:
If core temperature is obtained, it will be variable, but always below 105º F.
Clinical pattern is essentially that of compensated volume shock:

- Weakness and vomiting
- Skin is variable. Core → shell shunt to increase heat loss competes with shell → core shunt to protect volume. Skin is usually pale and moist with variable skin temperature.
- Sweating
- Normal consciousness and CNS function

TREATMENT: Goal is to reduce sweating and to restore volume.

BASIC

1. Protect the patient from heat challenge. Stop exercise and put patient at rest in a cool, shady place.
2. Oral fluids can be effective if the patient is not vomiting. Use dilute (less than 5% sugar) fluids given in small sips.

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

1. IV. Perform fluid challenge.

HEAT STROKE – A true medical emergency that requires radical field treatment. Usually, but not always, associated with heat exhaustion.

ASSESSMENT:
If core temperature is obtained it is 105º F or greater.
Abnormal consciousness and/or CNS function; seizures are common. **Any acute change in consciousness/CNS function in the context of a significant heat challenge should be managed as heat stroke without delay.**
Skin and sweating are variable, depending on volume status. Note that red, dry skin is not a dependable sign of heat stroke.

TREATMENT:
Immediate radical cooling is the urgent priority, followed by volume replacement.

BASIC

1. Cool the patient immediately by any means practical, such as:
    - Immerse the patient up to the neck in cold water.
    - Moisten the skin and fan vigorously. This method is effective only at low ambient humidity.
    - Ice packs, wet patient, cool wet sheets, and air conditioning en route.

2. Discontinue radical cooling if:
    - Shivering begins.
    - Core temperature falls to 102º F.
    - Consciousness and CNS function return to normal.

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

3. IV. Perform fluid challenge.

OPHTHALMOLOGY

PARAMEDIC

Eye pain: If no penetrating eye trauma and if the patient has no allergy to local anesthetics: Administer 2 drops Tetracaine ophthalmologic drops PRN to affected eye. If chemical exposure, also provide continuous irrigation with sterile NS.

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PEDIATRIC COMA

(Decreased Level of Consciousness)

BASIC

1. O_2 as appropriate. PPV if needed.
2. Spinal immobilization if indicated.
3. Request ALS if available.

INTERMEDIATE

4. Cardiac monitor en route.
5. IV, IO, TKO en route (18 or 20 gauge catheter is acceptable for IV).
6. Draw blood as IV established, or do finger stick, to measure blood glucose, using MEMS-approved technique/device.

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7. Contact OLMC for the following OPTION:

A. **If blood glucose < 80 mg/dl**, 10% Dextrose (1 ml of D_{50} in 4 ml IV fluid or use pre-mix) IV, IO, according to the following table:*

Weight (Kg/Lbs)	Volume to be infused
10/22	50 ml
20/44	100 ml
30/66	150 ml
40/88	200 ml

B. Naloxone (*Narcan*) 0.1-2 mg IV, IO, ET, **only give if depressed respirations and you suspect narcotic overdose,** titrate to improve respiratory drive; patients abruptly fully awakened may become combative, or suffer acute narcotic withdrawal symptoms. Some drugs such as Propoxyphene, Talwin, or Methadone may require high doses.

CRITICAL CARE / PARAMEDIC

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8. Contact OLMC for following
   A. Naloxone (*Narcan*) 0.1-2 mg IV, ET, IO, **only give if depressed respirations and you suspect narcotic overdose,** titrate to improve respiratory drive; patients abruptly fully awakened may become combative, or suffer acute narcotic withdrawal symptoms. Some drugs such as Propoxyphene, Talwin, or Methadone may require high doses.
   B. **If blood glucose < 80 mg/dl**, 10% Dextrose (1 ml of D_{50} in 4 ml IV fluid or use pre-mix) IV, IO, according to the above table.*
   C. Glucagon 0.5 mg IM (if IV, IO access is unavailable for administration of Dextrose.)*

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* If coma is secondary to trauma, without the possibility of hypoglycemia, **DO NOT** administer Dextrose or Glucagon.

PEDIATRIC SEIZURES

BASIC

1. Open, protect and maintain airway. O_2 as appropriate.
2. Spinal immobilization if indicated.
3. Protect the patient from self-injury.
4. Request ALS if available, if history of seizures, and seizure continues or unstable vital signs

INTERMEDIATE

5. Manage airway as needed. "See Blue 1 &3"
6. Cardiac monitor.
7. IV, IO, TKO.
8. Draw blood as IV established, or do finger stick, to measure blood glucose using MEMS-approved technique/device.

---

9. Contact OLMC for the following options:
   A. Dextrose 10% (1 ml of D_{50} in 4 ml IV fluid or use pre-mix) IV or IO according to the following table.*

Weight (Kg/Lbs)	Volume to be infused
10/22	50 ml
20/44	100 ml
30/66	150 ml
40/88	200 ml

   B. Naloxone (*Narcan*) 0.1-2 mg IV, IO, ET, **only give if depressed respirations and you suspect narcotic overdose,** titrate to improve respiratory drive; patients abruptly fully awakened may become combative, or suffer acute narcotic withdrawal symptoms. Some drugs such as Propoxyphene, Talwin, or Methadone may require high doses.

CRITICAL CARE / PARAMEDIC

10. Administer:
    A. Midazolam (*Versed*) 0.02 mg/kg IV maximum 4 mg: or Lorazepam (*Ativan*) 0.03 mg/kg IV with a maximum of 2 mg: or contact OLMC if repeat dosing is necessary.
    B. Alternate routes to IV dosing:
    Intramuscular dosing – Midazolam (*Versed*) 0.2 mg/kg IM if IV cannot be estabilished to maximum dose of 10 mg. Lorazepam (*Ativan*) 0.04 mg/kg IM to a maximum dose of 4 mg IM. Buccal administration: Midazolam (*Versed*) 10 mg per buccal/mucosa; Lorazepam (*Ativan*) 0.05-0.15 mg/kg per buccal. Rectal administration: Midazolam 0.3 mg/kg to a maximum dose of 10 mg (Lorazepam is too slow here).

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11. Contact OLMC for the following OPTIONS:
    A. Naloxone (*Narcan*) 0.1-2 mg IV, IO **only give if depressed respirations and you suspect narcotic overdose,** titrate to improve respiratory drive; patients abruptly fully awakened may become combative, or suffer acute narcotic withdrawal symptoms. Some drugs such as Propoxyphene, Talwin, or Methadone may require high doses.
    B. Dextrose10% (1 ml of D_{50} in 4 ml IV fluid or use pre-mix IV, IO according to the above table.*
    C. Glucagon 0.5 mg IM (if IV, IO access is unavailable for administration of Dextrose).*

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* If seizure is secondary to trauma, without the possibility of hypoglycemia, **DO NOT** administer Dextrose or Glucagon.

PEDIATRIC RESPIRATORY DISTRESS

(Epiglottitis, Croup, Bronchiolitis, Asthma)
(For Inspiratory Stridor – see protocol for Pediatric Respiratory Distress with Inspiratory Stridor) "See Pink 7"

BASIC

1. If adequate ventilation, let child assume position of comfort.
2. O_2 – optimal treatment for patients with stridor is cool, moist air at the highest possible oxygen concentration (allow parent to assist in administration).
3. Request ALS if available.
4. If inadequate ventilation:
    A. If foreign body suspected, use the AHA Foreign Body Airway Obstruction protocol.
    B. IF CHILD HAS INSPIRATORY STRIDOR, ESPECIALLY IF LEANING FORWARD OR IN THE SNIFFING POSITION, THEN:
        I. Put child in position of comfort.
        II. **DO NOT** ATTEMPT ANY PROCEDURE/MANEUVER (INCLUDING EXAMINATION OF OROPHARYNX) WHICH MAY INCREASE CHILD'S ANXIETY AND THEREBY RAISE CHANCES OF LARYNGOSPASM UNLESS ABSOLUTELY NECESSARY TO PRESERVE AIRWAY.
5. Open airway if needed, ventilate with bag-valve-mask if inadequate ventilation. In epiglottitis, this may require forceful ventilation, including closure of pop-off valve on BVM, and use of cricoid pressure (Sellick's maneuver) to prevent gastric distention.
6. Constantly monitor airway for patency in any unconscious child.

BASIC / INTERMEDIATE

Contact OLMC for the following OPTIONS:

7. If the patient's bronchodilator inhaler is Albuterol (Proventil or Ventolin) – assist patient in self-administering 8 puffs.
8. If patient's inhaler medication is not one listed in # 7, above, contact OLMC for permission to assist patient with self-administered bronchodilator inhaler (using spacer if available*). Inform OLMC of the name of the inhaler. OLMC will prescribe number of puffs.

* <u>If spacer unavailable and Critical Care/Paramedic present, they should use nebulizer instead.</u>

CRITICAL CARE / PARAMEDIC

1. If expiratory wheezing with spontaneous ventilation, use following OPTIONS:
   A. Second dose of patient's inhaler, dose as begun in # 7 (above).

   OR

   B. Albuterol – 2.5 mg by nebulization (use either 3 ml pre mix or 0.5 ml of 0.5% solution mixed in 3 ml of normal saline). May repeat 1 time.

   OR

   C. Short acting bronchodilator inhaler, 2-10 puffs with spacer.

2. Contact OLMC for Epinephrine (1:1,000) 0.01 mg/kg IM (this is 0.01 ml/kg) to a maximum of 0.3 mg/dose.

PEDIATRIC RESPIRATORY DISTRESS WITH INSPIRATORY STRIDOR

(Laryngotracheitis/Croup)

Inspiratory stridor may be due to many causes in the pediatric population, including croup, foreign body aspiration, or epiglottitis.

Stridor refers to upper airway obstruction as in laryngotracheitis/croup, and is often accompanied by hoarseness and/or a barking cough (seal-like cough).

As stridor worsens in severity, the following may also be observed: tachypnea, retractions, accessory muscle use, nasal flaring, fatigue from respiratory effort, and cyanosis.

BASIC

1. Humidified O_2, if available, as appropriate with upright posture.
2. If needed, assist ventilations with PPV using 100% O_2.
3. Request ALS if available.

CRITICAL CARE/PARAMEDIC

4. Contact OLMC for the following OPTION:
   A. Inhalation of nebulized solution of 1ml 1:1,000 Epinephrine mixed with 2ml normal saline solution. *

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* Nebulized Epinephrine may be contraindicated in children with a history of congenital heart disease.

PEDIATRIC RESPIRATORY ARREST

(with and without obstruction)

Prehospital providers should consider patient age, diagnosis, transport time, provider experience, and effectiveness of ongoing bag-mask ventilation in considering whether to continue with bag-mask ventilation versus proceeding to endotracheal intubation. Bag-mask ventilation has been shown to be equivalent to endotracheal ventilation in pediatric patients in most situations with short transport times.

BASIC

1. Follow AHA Respiratory Arrest procedure utilizing bag valve mask and 100% O_2 for ventilation. Use the AHA foreign body obstructed airway procedure as necessary.
2. Request ALS if available.

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

3. Secure airway, including Manage airway as needed. "See Blue 1 & 3".
4. Magill forceps if indicated.
5. Cardiac monitor.
6. IV, IO en route.
7. Pulse oximetry if available.

PEDIATRIC DIABETIC EMERGENCIES

(For Patients With Known Diabetes)

BASIC

1. O_2 as appropriate.
2. Request ALS if available.
3. If patient is conscious and able to swallow, give glucose orally.

Glucose paste is to be administered as soon as possible in patients presenting with the signs/symptoms of diabetic emergency.

INTERMEDIATE

4. IV en route.
5. Draw blood as IV established or do finger stick, to measure blood glucose, using MEMS-approved technique/device.
6. Cardiac monitor.

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7. If blood glucose < 80 mg/dl contact OLMC for OPTION of administering 10% Dextrose (1 ml of D_{50} in 4 ml IV fluid or use pre-mix) IV, IO, according to the following table:

Weight (Kg/Lbs)	Volume to be infused
10/22	50 ml
20/44	100 ml
30/66	150 ml
40/88	200 ml

EMT-I, in consult with OLMC, may modify the Paramedic response as appropriate.

CRITICAL CARE / PARAMEDIC

8. Dextrose
   A. 10% Dextrose (1 ml of D_{50} in 4 ml IV fluid or use pre-mix) IV, IO according to the above table.
   B. If IV, IO access is unavailable administer Glucagon 0.5 mg IM.
9. Repeat Glucose Measurement.

10. Contact OLMC for OPTION of repeating Dextrose.

PEDIATRIC SHOCK

If Trauma related "See Green 10"

Pediatric Shock is well established before the appearance of classic signs and symptoms. The earliest sign is delayed capillary refill. This may also be accompanied by altered level of consciousness, rising pulse and increasing respiratory rate. By the time blood pressure drops, circulatory collapse is near.

BASIC

1. Airway management.
2. O_2 as appropriate.
3. Hemorrhage control.
4. Keep child warm and dry.
5. Request ALS if available.

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

6. Cardiac monitor.
7. Pulse oximetry if available.
8. IV, IO en route.
9. 20 ml/kg bolus of IV fluid – IV, IO.
10. Manage airway as needed. "See Blue 1 & 3"
11. Reassess. If no improvement in capillary refill, level of consciousness, pulse or respiratory rate, repeat 20 ml/kg bolus.

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12. Contact OLMC for OPTION of additional bolus.

PEDIATRIC CARDIAC ARREST

(non-breathing, pulseless patient)

Pediatric cardiac dysfunction is usually due to a respiratory cause and is thus more likely to initially respond to effective oxygenation and ventilation, then fluid administration – and then medications may be needed. Defibrillation alone is rarely successful.

BASIC

1. 100% O_2 and ventilate with bag valve mask.
2. CPR – AED. "See Pink 13"
3. Request ALS if available.

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

4. Manage airway as needed. "See Blue 1 & 3" (consider possibility of foreign body obstruction).
5. IV, IO.
6. Cardiac monitor and treat dysrhythmias according to protocol using pediatric dosages listed below.
7. For traumatic cardiac arrest give IV, IO bolus of 20 ml/kg IV fluid. **May be repeated once.**

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8. Contact OLMC for option of medications, fluid boluses, defibrillations, or other ongoing interventions that may be necessary.

PEDIATRIC AED

(AED is not recommended by the AHA in infants less than one year of age because there is not enough information about use of AEDs in this age group.)

1. Check for response. If no response, request ALS.
2. Begin CPR. Continue pediatric CPR for one minute before use of AED.
3. If child does not respond and has no normal breathing or signs of circulation after one minute, use AED.
4. Turn power on. Attach pads to child's chest. Use child pads for children age 1-8. Stay clear of the victim. Be sure no one is touching child while AED checks rhythm.
5. Follow AED machine's instruction, alternating sets of shocks with CPR until ALS assumes care.
6. If patient regains pulse, assist respiration if needed. If AED recommends further shocks, be clear of victim. If patient becomes responsive, turn off AED.
7. If Intermediate/Critical Care/Paramedic arrives with manual defibrillator capabilities, discontinue AED and use manual defibrillator according to protocol. Do not repeat defibrillations already given by the AED.

Note: 1. Make sure the child's chest is dry and the child is in a dry area.
2. Use clearly marked child pads. If not available, use adult pads and place them so they don't overlap.

PEDIATRIC CARDIAC ARREST DOSAGES

Prehospital providers should consider patient age, diagnosis, transport time, provider experience, and effectiveness of ongoing bag-mask ventilation in considering whether to continue with bag-mask ventilation versus proceeding to endotracheal intubation. Bag-mask ventilation has been shown to be equivalent to endotracheal ventilation in pediatric patients in most situations with short transport times.

Atropine 0.02 mg/kg	**IV, IO** : Minimum dose : 0.1 mg Maximum single dose: 0.5 mg (child).
Epinephrine* (bradycardia)	**IV, IO**: 0.01 mg/kg (1: 10,000, 0.1 ml/kg **ET**: 0.1 mg/kg (1:1,000, 0.1 ml/kg).
Epinephrine* (asystole/ pulseless arrest)	<u>FIRST DOSE:</u> **IV, IO:** 0.01 mg/kg (1:10,000, 0.1 ml/kg) **ET** 0.1 mg/kg (1:1,000, 0.1 ml/kg). <u>SUBSEQUENT DOSES:</u> **IV, IO, ET**: 0.1 mg/kg (1:1,000, 0.1 ml/kg). Repeat every 3-5 minutes. IV, IO doses as High as 0.2 mg/kg of 1:1,000 may be effective.
Lidocaine	**IV, IO**: 1 mg/kg

* When administered via endotracheal tube, flush with 3-5 ml of NS and follow with several positive pressure ventilations.

"See Gray 28"

Cardioversion: 0.5 J/kg (initial); 1 J/kg (subsequent)

Defibrillation: 2 J/kg (initial); 4 J/kg (subsequent)

CHILDBIRTH

BASIC / INTERMEDIATE / CRITICAL CARE / PARAMEDIC

1. O_2 as appropriate.
2. Encourage mother to NOT bear down.
3. If hypotensive, roll patient onto left hip.
4. If the presenting part is the cord, apply pressure to the baby with a sterile, gloved hand to keep pressure off the cord. Raise mother's hips on two pillows. Keep cord warm. Do not clamp or cut cord.
5. Request ALS if available.
6. If baby's head is delivering:
    A. Do not hurry or slow delivery.
    B. Suction infant with bulb syringe (mouth then nose) as soon as head is delivered. Check to see if cord is wrapped around neck. If so, attempt to unwrap the cord. Failing this, clamp and cut immediately an deliver child.
    C. Double clamp the cord at least 4 inches from baby and cut between clamps.
    D. Dry baby, examine and keep warm (may place next to mother's skin). As soon as possible, enable child to nurse at mother's breast.
    E. Assess APGAR SCORE at 1 and 5 minutes. "See Pink 16"
    F. Do not externally massage the uterus en route until placenta has delivered.
    G. Do not forceably remove placenta.
    H. If placenta is delivered, wrap and package with cord intact.

APGAR SCORE

Assess the baby at 1 minute and again at 5 minutes.

DO NOT DELAY RESUSCITATION to obtain APGAR Score.

A score of less than 7 suggests need for resuscitation with suction, ventilation, and ALS back up.

SCORE

	0	1	2
A-Appearance	Blue or pale	Body pink Hands blue	Pink
P-Pulse	Absent	<100	>100
G-Grimace*	None	Grimace	Cough
A-Activity**	Flaccid	Some	Good
R-Respiration	Absent	Weak	Good

* Tested by a suction catheter or bulb syringe tip gently placed in the nose or mouth.

** Amount of spontaneous flexion of extremities.

NEONATAL RESUSCITATION

BASIC / INTERMEDIATE

1. Suction airway, as soon as head presents (mouth, oropharynx, then nose).
2. Dry infant to provide stimulation and prevent chilling.
3. **Keep infant warm.**
4. Check respiratory rate.
    A. > 20 or crying: no action.
    B. < 20: tactile stimulation. If not immediately effective, provide assisted ventilations with 100% oxygen. If unsuccessful, close pop-off valve.
5. Check heart rate:
    A. > 100: no action.
    B. 60-100: ventilate with 100% oxygen.
    C. < 60: begin chest compressions and ventilate with high concentration oxygen.
6. Check color
    A. Normal: no resuscitation needed.
    B. Central cyanosis: provide 100% oxygen and assist ventilations as needed.
7. Request ALS if available.

CRITICAL CARE / PARAMEDIC

8. Oral endotracheal intubation if BVM ventilation is ineffective or tracheal suctioning is required (i.e. thick meconium may need to be suctioned using an ET tube as a catheter).

9. Contact OLMC for the following OPTIONS:
   A. Epinephrine 0.01 mg/kg IV, ET ,IO (1:10,000) and repeat every 5 minutes if heart rate is less than 80 despite adequate ventilation and a trial of chest compressions for 1 minute.
   B. IV, IO; fluid challenge @ 10 ml/kg bolus.
   C. Naloxone (*Narcan*) 0.1-2 mg IV, IO, ET.
   D. Consider hypoglycemia, give Dextrose 10% (dilute 1 ml D_{50} in 4 ml LR, or pre-mixed) 5 ml/kg IV, IO bolus.

NOTE: Remember to obtain APGAR score on baby "See Pink 16"

NORMAL PEDIATRIC VITAL SIGNS

	Systolic BP (mm Hg)	Pulse (beats/min)	Respirations (breaths/min)
Newborns	50-90	100-180	30-60
Infants	87-105	100-160	30-60
Toddlers	95-105	80-110	24-40
Preschoolers	96-108	70-110	22-34
School-agers	97-112	65-110	18-30
Adolescents	112-128	60-90	12-16

NOTE: Estimated weight in kilograms: [2 x (age in years)] + 8

DO NOT RESUSCITATE (DNR) GUIDELINES

I. When to Start Resuscitation:

As soon as the absence of pulse and respiration is established.

II. When Not to Start Resuscitation (Assuming normothermic body):

A. Any patient displaying obvious and accepted signs of irreversible death such as rigor mortis, dependent lividity, decapitation, decomposition, incineration or other obvious lethal injury when cardiac monitor-if available-shows asystole or agonal rhythm.

B. Major blunt trauma victims who have no respiration and no pulse, no sign of life at the time of Maine EMS licensed crew member arrival, and whose cardiac monitor – if available shows asystole or an agonal rhythm.

C. When an original, signed physician's Do Not Resuscitate (DNR) Order is presented in one of three forms:

1. EMS DNR orders from other state EMS/DNR programs:- If the order or device (bracelet, necklace, card) appear to be in effect, and understandable to the crew, follow the orders specific instructions. If there are no specific instructions beyond "DNR", follow Maine EMS Comfort Care/DNR Guidelines.
2. Non-EMS DNR Orders - A written, signed, original DNR order executed by a patient's personal physician should be honored if it is understandable to the crew and if it is dated

within 1 (one) year. Follow the order as written. If it is non-specific as to care to provide or withhold, follow the MEMS Comfort Care/DNR guidelines.

3. Maine EMS Comfort Care / DNR Program - A Maine EMS Comfort Care/DNR form does not have an expiration date. Once activated, it remains in effect until the patient or someone acting on their behalf as described and authorized on the Comfort Care/DNR orange form cancels it.
   A. When treating a patient with a Maine EMS Comfort Care/DNR Order the responding EMS provider should:
      1. Perform routine patient assessment and resuscitation or intervention until the EMS Comfort Care/DNR Order is confirmed:
         a. Determine that the EMS Comfort Care/DNR Care/DNR bracelet or necklace is intact and not defaced, or that the original EMS Comfort Care/DNR Order or wallet card is present. A Maine EMS approved jewelry–type medical information bracelet or necklace is also acceptable. Bracelets may be worn on the wrist, ankle or on a necklace.
         b. If no bracelet or necklace is found, look for the *original* orange EMS Comfort Care/DNR Order Form or Wallet Card. If the EMS Comfort Care/DNR bracelet or necklace is not present, and if no valid EMS Comfort

Care/DNR Order is found, consider the EMS Comfort Care/DNR to be invalid.

c. Verify the identity of the patient through family through family or friends present, or with photo ID such as a driver's license. A good faith effort only is required.

B. Follow these EMS Comfort Care/DNR procedures in all cases:

1. These comforting interventions are encouraged:
   a. Open airway manually (NO intubation, NO BVM unless invited by conscious patient);
   b. Suction and provide oxygen;
   c. Make the patient comfortable (position, etc.);
   d. Control bleeding;
   e. Pain and other medications of comfort to a conscious patient only (ALS per medical control);
   f. Be supportive of patient and family;
   g. Contact patient's physician or OLMC if questions or problems.
2. Resuscitative measures to be avoided:
   (these are to be withheld, or withdrawn if resuscitation has begun prior to confirmation of EMS Comfort Care/DNR Order status).
   a. CPR:
   b. Intubation (ET Tube, or other advanced airway management); surgical procedures;
   c. Defibrillation;

d. Cardiac resuscitation medications;
e. Artificial ventilation by any means;
f. Related procedures per OLMC.

3. Revocation – Who may revoke an EMS Comfort Care/DNR Order:
   a. The patient (by destroying EMS Comfort Care/DNR Order Form and Bracelet, or verbally with drawing order);
   b. The patient's physician who signed the order;
   c. The Authorized Decision-Maker for the patient who signed the order.
4. Documentation:
   a. Use the Maine EMS patient/run form.
   b. Describe assessment of patient's status.
   c. Document which identification (Form or Bracelet) was used to confirm EMS Comfort Care/DNR status and indicate that it was intact and not revoked.
   d. Indicate the EMS Comfort Care/DNR Order number, as well as the patient's physician's name, on patient/run form.
   e. If the patient has expired on arrival, comfort family and follow agency's procedure for death at home. A Maine EMS patient/run form still needs to be completed.
   f. If the patient is transported, a photocopy of the Comfort Care/DNR form may accompany the

patient, provided the EMS personnel have verified that the original form is valid.

5. When to Stop Resuscitation:
   a. When the patient regains pulse and respiration.
   b. When equally, or more highly, trained rescuers or health care personnel take over.
   c. When the rescuers are physically exhausted.
   d. When a patient's personal physician or OLMC orders resuscitation to stop.
6. Contact OLMC for OPTIONS to stop:
   a. When the patient in asystole is unresponsive to advanced cardiac life support efforts for greater than 10 minutes.
   b. When the patient is unresponsive to advanced cardiac life support protocols per formed by Critical Care EMTs or Paramedics for 20 minutes.
   c. In the absence of advanced cardiac life support, when the same Maine EMS licensed crew member has documented the absence of all vital signs for 20 minutes, in spite of BLS, except in the case of hypothermia.

III. Management of Bodies

If resuscitation efforts are discontinued, arrangements should be made with OLMC with regards to disposition of the body. Contact your local ED with regard to tissue donation options and procedures in advance.

DEATH SITUATION GUIDELINES FOR EMERGENCY MEDICAL RESPONDERS

PURPOSE: Development of DEATH SITUATION PROCEDURES by Emergency Medical Services.

PREPARED JOINTLY BY: Attorney General, Office of Chief Medical Examiner, and Maine State Police.

GENERAL AIM: Preservation of scene, including body as found, for investigative purposes within practical limits consistent with the role and responsibilities of emergency medical care givers.

Death Situation Guidelines

I. **Preserve life:** While forensic guidelines emphasize that the scene should not be disturbed, the first and most important course of action is to follow all usual procedures to ensure the preservation of life.

II. **Once Death is confirmed:** *If the decedent is clearly dead,* ***the body should not be moved or disturbed*** *unless there is a danger that the body may be lost or further damaged.*

A. Maine statutes do not require a pronouncement of death.

B. The scene should be secured and left undisturbed.

1. If the police are present, they should take charge in order to determine whether the case falls under the jurisdiction of the Office of Chief Medical Examiner (OCME) or may be certified by the private attending physician.

2. If there is no police officer present, EMS should call the local police or call the OCME directly to report the case, so that a determination may be made as to the need for further investigation into the cause and manner of death. OCME emergency line to report deaths: 1-800-870-8744

C. **Tubes and Medical Devices** should be left in place. Certain reusable equipment may be removed to resupply the ambulance, however written documentation of any such action must be given to investigators.

D. **Any clothing or property should be left undisturbed.**

III. **What is a Medical Examiner (ME) case?:**

A. Any suspected HOMICIDE.
B. Any suspected SUICIDE.
C. Any death involving any ACCIDENT or INJURY.
D. Any death of a CHILD.
E. Any death in CUSTODY.
F. Deaths caused by SUSPECTED GROSS NEGLIGENCE during a Medical Procedure.
G. SUDDEN DEATH from an UNKNOWN cause or any death where there is no private attending physician.
H. UNIDENTIFIED persons.
I. OCCUPATIONAL Deaths (Work related).
J. Unnatural Deaths in a Mental, Residential Care or DHS Facility.
K. Any death that might ENDANGER or THREATEN the Public Health.

IV. **Deaths in Children:**

A. All deaths in children under the age of three automatically become medical examiner cases unless the death is expected based on previously diagnosed natural disease.

B. Determination of the cause of death in infants and children is very difficult. While the OCME understands the concerns of the parents, the child must be left undisturbed until investigating police officers have finished the initial investigation. SIDS is not an acceptable reason to transport a deceased infant or allow the infant to be moved prior to investigation.

V. **Reports and follow-up on Medical Examiner cases:**

A. If families have questions, they may be referred to the OCME. Families should call the office using the 24 hour business line at 624-7180.

B. Copies of EMS run sheets should be given to police investigators and/or the OCME.

C. If any EMT wishes follow-up information on any specific case, or if there is a question of infectious exposures, call the OCME on the business line, 624-7180.

MASS CASUALTY / DISASTERS / HAZMAT

GENERAL RESPONSIBILITY FOR DECEASED PERSONS: The Office of Chief Medical Examiner is responsible for deceased victims of mass disasters including identification and removal from the scene. The Office of Chief Medical Examiner (1-800-870-8744, restricted emergency call number) should be informed immediately of any multiple fatality situations.

1. **BODIES SHOULD BE LEFT IN PLACE AT SCENE** except when they must be moved to preserve them from destruction or when they block access. The resting place of the victim may be critical for identification of the body and/or reconstruction of the incident. They can be tagged as fatalities to prevent other medical personnel from repeating examination.
2. **IF DEATH OCCURS EN ROUTE TO THE HOSPITAL,** the body need not be returned to the scene but can be brought to the hospital or other suitable storage place as determined by distances and needs of other patients in the ambulance. If the body is left anywhere other than the hospital or designated temporary morgue, the body should be tagged and the Office of Chief Medical Examiner should be advised.
3. **THE SITE A VICTIM IS REMOVED FROM SHOULD BE NOTED** on a tag along with the name and agency of the person who removed it whenever removal is needed and in cases of death after removal. Such information may be critical for identification of the body and/or

reconstruction of the incident.

4. **IF AN IDENTIFICATION OF A PATIENT IS MADE**, a tag with at least the name and date of birth of the patient/deceased along with the identifier's name, relationship, address and where he/she can be located should be put on the body.
5. **PERSONAL PROPERTY SHOULD BE LEFT WITH THE BODY** including clothing removed from a patient if the victim dies. Nothing should be removed from those already deceased.

MASS CASUALTY / DISASTERS / HAZMAT
(Continued)

Consistent with New England EMS Council MCI Management the action priorities for the first medical crews arriving on the scene are:

1. Assess and avoid exposure to existing dangers.
2. Notify dispatch of type of MCI and estimate of number and type of patients
    A. Request EMS, fire, police assistance.
    B. Request hospital notification.
3. First ambulance or other vehicle with medical frequencies becomes EMS command vehicle – locate near fire and police command vehicles. Strip equipment/supplies – place in equipment area (near planned patient collection/treatment area).
4. Designate, in the following order, the following positions as qualified personnel become available:

EMS CONTROL OFFICER – Reports to Incident Commander. Responsible for overall patient triage, treatment, and transportation. Procures EMS back-up, supplies, equipment, transport vehicles as needed, supervises and assigns all other medical personnel.

PRIMARY TRIAGE OFFICER –Rapidly assesses all patients then assigns personnel to provide treatment to those patients in most need of immediate treatment, who will most benefit from

immediate care with the resources available. Treatment is limited to:

- Bleeding – rapid pressure dressing if severe
- Airway – reposition patient
- Shock – elevate extremities

SECONDARY TRIAGE OFFICER – Rapidly tags all patients, or assigns personnel to do tagging with METTAGS, supervises immobilization after classification, and oversees transfer to collection/treatment area.

Tag categories are:

RED (I): Conditions requiring immediate transport by ambulance to prevent jeopardy to life or limb and which will not unduly deplete personnel/equipment resources (examples: progressive shock, major blood loss, major multiple injuries, severe respiratory distress. Cardiac arrest – only if personnel can be spared).

YELLOW (II): Not requiring immediate transport to prevent jeopardy to life or limb, but eventually will require ambulance transport to hospital for attention.

GREEN (III): Minor conditions probably not requiring ambulance transport to hospital.

BLACK (O): Are obviously dead, or dying from lethal injuries, or requiring CPR when no personnel available to do so without compromising other patients.

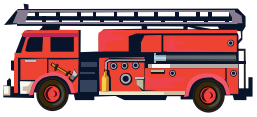
MASS CASUALTY / DISASTERS / HAZMAT
(Continued)

TREATMENT OFFICER – Sets up / supervises patient collection / treatment area. Reassesses and retags (if necessary) patients, assigns patients and personnel to treatment areas. Prioritizes for transport. Coordinates with Loading/Transport officer to make single radio transmission to receiving facility (pt. ID#, METTAG priority, nature of injury, ambulance, and ETA ONLY).

LOADING OFFICER – Stages ambulances in holding area. Instructs crews to put all available equipment in equipment area. Assigns patients to vehicles. Directs drivers to hospital(s). Instructs not to contact hospital unless OLMC required for condition change. Notifies hospital, or coordinates communication to hospital with Treatment Officer (see above). Records departure times, hospital notification times, patient ID#'s and destination of all transporting vehicles.

SUGGESTED SCENE ORGANIZATION:
NOT FOR HAZMAT

INCIDENT COMMAND POST



EMS CONTROL OFFICER

EQUIPMENT

AMBULANCE LOADING

RED

I N C I D E N T S C E N E

PRIMARY TRIAGE OFFICER

LOADING OFFICER

TREATMENT OFFICER

YELLOW

SECONDARY TRIAGE OFFICER

GREEN

TRIAGE / HOLDING AREA

Intentionally Left Blank

SEXUAL ASSAULT VICTIM

ALL LEVELS

1. Treat any life-threatening emergency first and according to these protocols.
2. Try to attend to maintenance of forensic evidence. Try not to cut through tears or stains in clothing. Do not cleanse any skin area more than necessary to provide immediate care.
3. If the patient so desires and/or mandated reporting is indicated, police should be called if they have not already been notified.
4. If no life-threatening situation is present, prehospital care may require waiting for police to secure the scene which is a potential crime scene.
5. Victims of sexual assault commonly have much guilt, and may require much psychological support. Please respect the stress that they are enduring.
6. By nature of this event, any touch may be traumatic for this patient. Overtly and repeatedly explain what you are doing to try to lessen the impact of procedures and touching.
7. Advise the patient not to eat, drink, smoke, bathe, change clothing or go to the bathroom if at all possible in order to preserve any forensic evidence. If they must urinate, request that they do not wipe.
8. If the patient has removed any clothing worn in the assault, each piece of clothing should be separately bagged in paper bags and brought to the hospital with the patient.
9. When transporting the patient, it is preferable whenever possible to have a same sex provider as the primary provider. If the assault is a same sex assault, then a provider of the opposite sex may be more comfortable for the patient.
10. To maintain privacy and confidentiality, use a landline for hospital reporting whenever possible and do not clarify

the type of assault, only that you are transporting a "victim of assault."

11. The patient should be encouraged to go to the hospital for a sexual assault forensic examination that would allow not only the option to have collection of forensic evidence, but also treatment of possible injuries and the chance to obtain pregnancy and sexually transmitted disease pro phylactic treatment.
12. If the patient refuses treatment and/or transportation to the hospital, document all findings and observations as completely as possible. When signing the patient off at the scene, try to have a police officer witness this sign off.

CHILD ABUSE
MANAGEMENT AND REPORTING

All levels

- Child abuse and child neglect are sufficiently widespread to guarantee that virtually every EMS provider will encounter them at least once during his/her career.
- It is estimated that approximately 2-3 million cases occur each year or approximately 11 cases per every 1,000 children within the U.S. Each year at least 2,000 children die from physical abuse.
- The most commonly identified forms of abuse by the EMS provider are physical abuse and severe physical neglect, although sexual abuse may on occasion be observed.
- The EMS provider must at all times demonstrate and maintain a supportive and non-judgmental attitude with primary caregivers. Accusation and confrontation delay immediate treatment as well as transportation to a definitive care facility.
- When abuse is a possibility the healthcare professional has two major responsibilities: first, to provide medical care to the child; and second, to collect and document all information that may possibly establish the occurrence of abuse or neglect. Refrain from asking the child too many questions and specifically do not ask any leading questions—keep questions simple and open-ended such as "What happened?" and "Are you hurt?"
- As an EMS provider, you must report immediately to Child Protective Services any child whom you have "reasonable cause to suspect" has been abused or will be abused. Failure to do so is punishable as a civil violation. It is not enough to tell someone else of your suspicions. If a child is abused and unreported, there is a 50% chance that the child will be abused again and a 10% chance that the child will die from future abuse. (Title 22, Subchapter II, Subsection 4011)

Possible Indicators of Abuse

1. Injured child under two years of age, especially hot water burns or fractures.
2. Facial, mouth, or genital injuries.
3. Multi-planar injuries (front and back, right and left)—especially when not over bony prominences.
4. Poor nutrition or poor care.
5. Delay in seeking treatment.
6. Vague, inconsistent, or changing history.
7. The comatose child, the child in shock, or the child in arrest.

"See Pink 12"

Treatment of suspected child abuse in the field

1. Suspect abuse but do not accuse the caretaker. Every time a child is encountered by the healthcare professional having a traumatic injury the question that should come to mind is, "Could this be abuse?" In most cases the answer will be an obvious "no;" however, enough uncertainty will exist in some cases to warrant further assessment.
2. Follow normal initial assessment priorities of the ABC's and mental status when caring for the child.
3. Provide the appropriate intervention procedures for any abnormal findings such as respiratory, trauma, or other medical emergencies; shock; or altered mental status.
4. EMS providers are in key positions to assess environmental conditions and the observable interactions of family and child. Environmental signs of possible abuse or neglect

may include but not be limited to: unsanitary conditions; garbage scattered about the house; unsafe conditions such as open, unguarded windows or potentially dangerous objects within reach of children.

5. Perform a detailed physical examination on any child in stable enough condition to allow for such. Examine all parts of the body for deformities, ecchymosis, lacerations, abrasions, punctures, burns, tenderness, and swelling. It is vitally important that injuries of the mouth and sternum be observed in detail prior to the initiation of resuscitative measures and documented that such injuries were found prior to resuscitation.
6. It is important to transport all children having evidence of abuse or neglect due to the possibility of additional injuries not immediately obvious. Transport of potentially abused or neglected children ensures that they receive the appropriate and necessary social services. Assistance may be necessary from law enforcement, OLMC, etc.
7. Convey your impressions and information to the hospital staff.
8. Write a detailed and descriptive report, which provides an accurate and clear record of all observations and treatment from the time of the initial call through transfer of the patient to the ED staff. Do not make a diagnosis of abuse, and refrain from including personal opinions, emotional overtones, or interpretations. Primary caregiver quoted statements must be documented as such with quotation marks, and exactly word for word as stated by the person. As well, this legal document must be legible.

9. Contact Adult and Children's Emergency Services at 1-800-452-1999 to make a report. This is a 24-hour a day reporting number. You will be protected by law from civil liability for making such a report if made in good faith.

ADULT ABUSE

(Title 22 MRSA, Chapter 1-A, Subsection 3477)

"Reasonable cause to suspect. When, while acting in a professional capacity, an...ambulance attendant, emergency medical technician...suspects that an adult has been abused, neglected or exploited, and has reasonable cause to suspect that the adult is incapacitated, then the professional shall immediately report or cause a report to be made to the department."

Call the Adult's and Children's Emergency Services: 1-800-452-1999 (24 hours a day). Similar protection from liability for reporting exists.

INTOXICATED DRIVERS

(Title 29-A, Subchapter 1, Subsection 2405)

"Persons who may report. If, while acting in a professional capacity a...emergency medical services person...knows or has reasonable cause to believe that a person has been operating a motor vehicle, hunting or operating a snowmobile, all-terrain vehicle or watercraft while under the influence of intoxicants and that motor vehicle, snowmobile, all-terrain vehicle or watercraft or a hunter has been involved in an accident, that person may report those facts to a law enforcement official."

Immunity from civil liability for making such a report exists in Maine law.

BIO-TERRORISM/WMD

If you suspect a chemical or biological agent threat, call your local law enforcement agency immediately.

Maine Bureau of Health Emergency Reporting and Consultation	1-800-821-5821
Maine National Guard 11th Civil Support Team (WMD)	(207) 873-9591
Maine Emergency Management Agency	(207) 624-4400

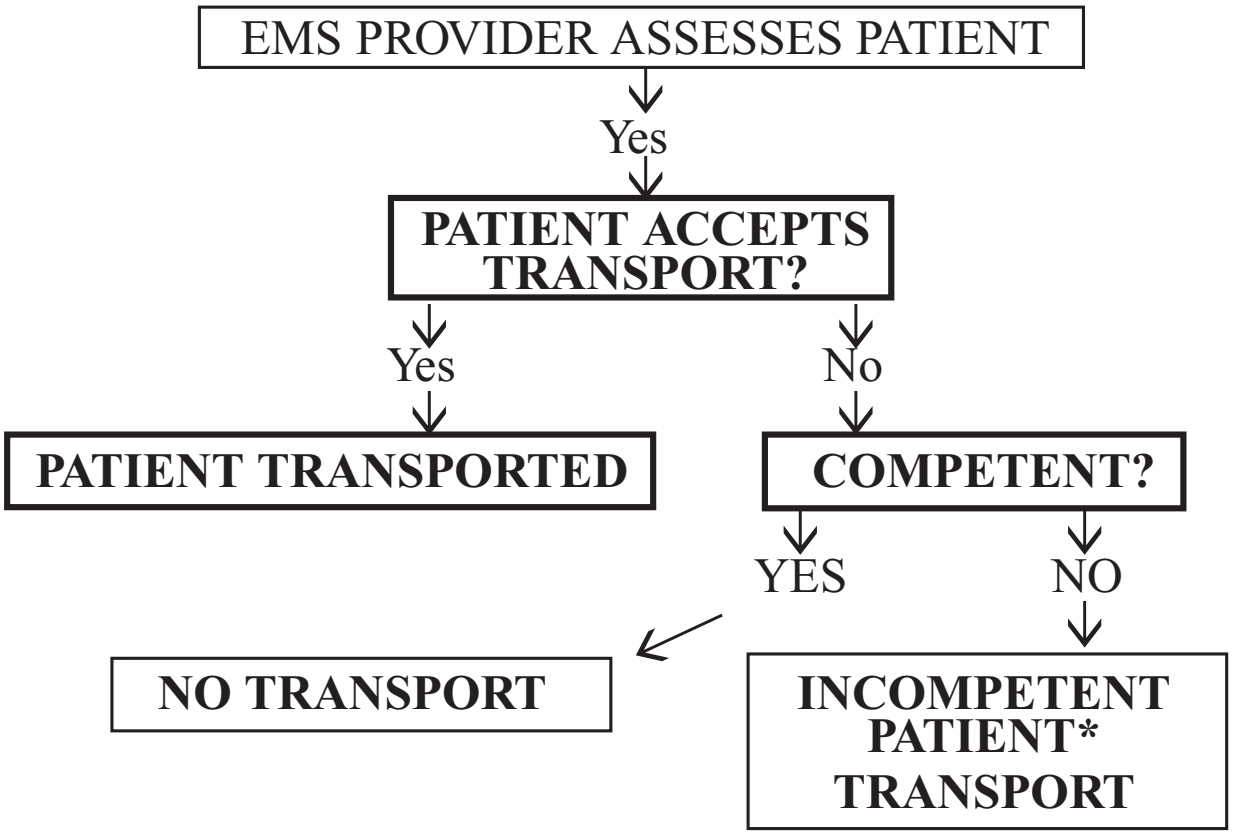
Patient Restraint – General

There are situations in which EMS personnel may appropriately restrain patients, (e.g. hypoxic patient). However, EMS personnel are not expected to restrain patients if this creates a threat of substantial physical harm to themselves.

"A licensed physician, or a person acting under his direction, may use force for the purpose of administering a recognized form of treatment which he reasonably believes will tend to safeguard the physical or mental health of the patient, provided such treatment is administered in an emergency relating to health when the physician reasonably believes that no one competent to consent for the patient, can be consulted and that a reasonable person concerned for the welfare of the patient would consent." (Title 17-A, subsection106). Contact OLMC or the patient's physician for this type of direction.

Finally, a person believed by a law enforcement officer to be mentally ill and who presents a threat of imminent and substantial physical harm to self and others, may be taken into protective custody by the officer. EMS personnel may follow the directions of this officer with regard to restraint. (Title 34-B, Subsection 3862.)

TRANSPORT PROTOCOL



*An incompetent patient would be one who is: intoxicated, confused, delirious, psychotic, comatose, unable to understand the language, or is a minor, etc.

1. If there is a question of competency or the patient does not appear to understand the consequences of his/her refusal of transport, then contact OLMC.
2. The patient must be informed of the consequences of his/her refusal to be transported. This must be documented in the patient/run report.

3. This screening may typically arise when an ambulance is requested by someone other than the patient (e.g. the police, a bystander). The EMS run report must always be completed.
4. If the patient requests transport or is judged to be incompetent, the EMT must speak directly with OLMC. If unable to reach OLMC, the patient is transported.

TRANSPORT OF MENTALLY ILL PATIENTS

Maine EMS personnel are generally called to transport a mentally ill patient in one of two situations:

Emergency Transport

Safety for the patient and the crew is the primary concern in the transport of the mentally ill patient. Personnel should make sure they do a thorough evaluation of the patient to find and treat possible medical causes of the behavior.

EMS personnel are authorized under Maine law as physician extenders to physically restrain any patient who poses a threat to themselves or others. Providers are cautioned to use physical restraint as a last resort, preferably with the assistance of local law enforcement. Once the decision is made to restrain a patient, the patient should remain restrained until arrival at the emergency department, unless it interferes with the delivery of medical care.

Non-Emergency Transfer

Mentally ill patients who are being transferred usually fall into one of these categories:

Voluntary Committal – These patients have agreed to be transferred to a facility for evaluation and treatment of an underlying

mental illness. It is important to get a thorough report on the patient prior to transport to avoid surprises en route. Voluntary committal patients can change their mind during transport. In this case, it is the responsibility of the EMS personnel to discharge the patient at a safe location, *preferably at the originating facility*. If it is not possible to return the patient to the originating facility, notify local law enforcement to meet you at your location.

Involuntary Committal – Patients who are being committed involuntarily must have committal papers (blue papers) completed prior to transport. Between the hours of 7 a.m. and 11 p.m. a judge has to sign the committal papers. After 11 p.m. and before 7 a.m. the papers do not have to be signed except for Riverview Psychiatric Center (formerly AMHI)—this is known as the "pajama clause". Make sure that the transporting service is listed correctly on the papers. According to Maine law, the patient must be transported in the least restrictive form of transportation available. Make sure you get a thorough history to determine whether restrains will be necessary. *If the receiving facility refuses to accept the patient after evaluating them, the transporting service is required by law to transport the patient back to the originating facility.*

PROTECTIVE HEADGEAR REMOVAL

The decision to remove protective headgear from an injured patient rests with the EMS provider on scene unless a Maine licensed physician is on scene and takes responsibility for the patient. It is important to immobilize the patient in a neutral in-line position, regardless of whether or not you choose to remove the helmet. This requires that you evaluate each patient and determine if other equipment (i.e. shoulder pads) must be removed or if additional padding under the shoulders or head is necessary. *In the case of an athletic injury, the EMS provider should consider input from athletic trainers. Disputes should be referred to OLMC Control for resolution.*

When deciding whether to remove protective headgear, please evaluate the following criteria:

Can you access the airway? —-NO— Remove the headgear

Yes

Can you assess the airway? —-NO— Remove the headgear

Yes

Does the helmet fit snugly? —-NO — Remove the headgear

Yes

Can you adequately immobilize the spine while maintaining neutral in-line position? —-NO — Remove the headgear

Yes

You can choose to leave the helmet in place
if you feel it is in the best interest of patient care.

DEFIBRILLATION / CARDIOVERSION SETTING

DEFIBRILLATION SETTING*

	Initial	Second	Third	Subsequent
Adult	200 J	200-300 J	360 J	360 J
Pediatric	2 J/kg	4 J/kg	4 J/kg	4 J/kg

CARDIOVERSION SETTING*

	Initial	Second	Third	Subsequent
Adult (V-TACH)	100 J	200 J	300 J	360 J
Adult (SVT)	50 J	100 J	200 J then 300 J	360 J
Pediatric	0.5 J/kg	1 J/kg	1 J/kg	1 J/kg

* Use closest machine setting possible.

For biphasic defibrillation device, use monophasic equivalents as noted above.

DRUG DOSAGE TABLE

Weight (lb)	22	44	66	88	110	132	154	220
Weight (kg)	10	20	30	40	50	60	70	100
Adenosine **Pediatric dose:** 0.1 mg/kg. **Adult dose:** 06-12 mg.								
Albuterol (ml) (0.5% sol.)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Atropine (mg) **Pediatric dose:** 0.02 mg/kg (min. dose: 0.1 mg, max. dose: 0.5 mg (child) to 1.0 mg (adolescent).								
Atropine (mg) **Adult dose:** 0.5 mg.								
Atropine (mg) (asystole) **Adult dose:** 1.0 mg: max. total doses: .04 mg/kg.								
Dextrose (grams)	5	10	15	20	25	25	25	25
Diphenhydramine IM, IV (mg)	10	20	30	40	50	50	50	50
Dopamine (Recommended starting dose)								
(mcg/min)	100	200	300	400	500	600	700	1000
(mcgtts/min)	4	8	11	15	18	22	26	38
Epinephrine (mg) (VF/Pulseless VT)	1	1	1	1	1	1	1	1
Fentanyl (mcg)**Adult dose:**25-50 mcg IV	3	6	9	12	15	18	21	25
Furosemide **Initial adult dose:** 40 mg								
Glucagon (mg)	0.5	0.5	0.5	0.5	1	1	1	1
Lidocaine (mg)	10-15	20-30	30-45	40-60	50-75	60-90	70-100	100
Lorazepam (mg) **Adult dose:** 2-4 mg IV								
Magnesium (g)	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2
Midazolam (mg) **Adult dose:** 3-5 mg IV								
Naloxone (mg) **Adult and Pediatric dose**	0.1-2	0.1-2	0.1-2	0.1-2	0.1-2	0.1-2	0.1-2	0.1-2
Promethazine **Adult dose:** 12.5 or 25 mg; 25 mg as adjunct to narcotic administration.								

ENDOTRACHEAL TUBE SIZES

Age	ET Tube Size ID (mm)	Suction Catheter Size
Premature Newborn	2.5, 3.5*	5-6 F
Term Newborn	3.0, 3.5	6-8 F
6 months	3.5, 4.0	8 F
1 year	4.0, 4.5	8 F
2 years	4.5, 5.0*	8 F
4 years	5.0, 5.5*	10 F
6 years	5.5*	10 F
8 years	6.0**	10 F
10 years	6.5**	12 F
12 years	7.0	12 F
Adult	7.0 – 9.0	12 F – 14 F

*Uncuffed

**Cuffed or uncuffed

LMA SIZES

Neonates/Infants	1
Infants between 5-10 kg	1.5
Infants/children 10-20kg	2
Children 20 – 30 kg	2.5
Children /small adults over 30 kg	3
Normal and large adults	4
Large Adults	5

REMINDER: Lidocaine*, Epinephrine, Atropine*, and Narcan ("LEAN"), can be given via the ET Tube if an IV route is unavailable and an ET Tube is in place. Double the IV dosage, flush with NS (3-5 ml for pediatric patients; up to 10 ml for adults), and follow with several positive pressure ventilations. Do not rely on this route throughout – attempt IV access.

For ET size, pinky finger diameter in a child affords an acceptable approximation of OD. The formula "$\frac{\text{AGE (Yrs)}}{4}$ + 4" and the Broselow- Hinkle Tape may be used for ID determination. Using a tube one size larger or smaller than this guideline is also acceptable.

*** Except in pediatric patients.**

RATE
CONVERSION CHART

(ml/hr to gtts/min.)

Drip Rate in gtts/min.

IV Rate ordered in ml/hr.	15 gtts/ml (Abbott)	10 gtts/ml (Travenol)	20 gtts/ml (Cutter)	60 gtts/ml (Microdrip)
1	0	0		1
5	1		2	5
10	3	2	3	10
20	5	3	7	20
30	8	5	10	30
40	10	7	13	40
50	13	8	17	50
75	19	13	25	75
100	25	17	33	100
125	31	21	42	125
150	38	25	50	150
200	50	33	67	200
300	75	50	100	300
To get gtts/min., you may also divide the order given in ml/hr by:	4	6	3	1

INTRAVENOUS ADMIXTURES

LIDOCAINE: Mix 2 grams in 500 ml in IV fluid. Makes 4 mg/ml.

To Run:	Use Microdrip Set at:
2 mg/min	30 gtts/min
3 mg/min	45 gtts/min
4 mg/min	60 gtts/min

-For 2 grams mixed in 250 ml IV fluid, run at half the gtts/min rate to achieve same mg/min.

DOPAMINE: Mix 800 mg in 500 ml IV fluid.
Makes 1600 micrograms ml (mcg/ml).

Dopamine Drip Rate
(mcgtts/min.)

Weight

	lbs	88	132	176	220
	kg	40	60	80	100
Mcg/kg/min.					
5		7	11	15	19
10		15	23	30	38
20		30	46	60	76

MAINE EMS DRUG/MEDICATION LIST

The following are medications currently approved for use by Maine EMS licensees – as authorized by the Maine EMS Protocols. This list may be altered through protocol revision.

Prehospital and Interfacility Medications:

Activated Charcoal (without sorbital)
Adenosine
Albuterol
Aspirin
Atropine
Cyanide poisoning kit contents
Dextrose (D10, D50)
Diphenhydramine
Dopamine
Epinephrine (1:1000, 1:10,000)
Fentanyl
Furosemide
Glucagon
Heparin Solution (for use in maintaining IV access in a heparin lock only; otherwise this is not considered a prehospital medication. Approved also at Intermediate level).
Lidocaine
Lorazepam
Magnesium Sulfate

Midazolam
Naloxone
Nitroglycerin (Non-parenteral)
Nitrous Oxide
Promethazine
Tetracaine Ophthalmologic Drops
Sodium Bicarbonate
Thiamine

The following are Paramedic Interfacility Program medications only:

Heparin Drip
Nitroglycerin Drip
Potassium
Haloperidol
Antibiotics
Insulin
TPN
Diltiazem
Morphine
Demerol
Vitamin Drip
Glycoprotein IIb/IIIa Platelet Antagonists
Procainamide

TELEPHONE / RADIO REFERENCES

NAME **RADIO FREQ** **PHONE #**

Hospital:
Hospital:
Hospital:
Hospital:
Hospital:
Hospital:
Dispatch:
State wide EMS Frequency 155·385

Maine EMS: Phone 626-3860; Fax 287-6251
e-mail : maine.ems@maine.gov
www.maine.gov/dps/ems
Jay Bradshaw, EMT-P, Director
Drexell White, EMT-P, Licensing Agent
Dawn Kinney, EMT-P, Licensing Agent
Dwight Corning, EMT-P, Training & Education Coordinator
John Bastin, PA, EMS Preparedness Coordinator
Medical Director: Steven Diaz, M.D.

Region 1 – Southern Maine EMS – 741-2790
e-mail: smems@smems.org
Donnie Carroll, Coordinator
Medical Director: Eliot Smith, M.D. 363-4321

Region 2 – Tri-County EMS – 795-2880
e-mail: info@tricountyems.org
Joanne LeBrun, Coordinator
Medical Director: Al Riel, M.D. 795-2870

Region 3 – Kennebec Valley EMS – 877-0936
e-mail: office@kvems.org
Rick Petrie, Coordinator
Medical Director: David McKelway, M.D. 861-3000

Region 4 – Northeast EMS – 942-4669
e-mail: neems@emcc.edu
Rick Petrie, Coordinator
Medical Director: Paul Liebow, M.D. 973-8005

Region 5 – Aroostook EMS – 492-1624
e-mail : arems@maine.rr.com
James Caron, Coordinator
Medical Director: Beth Collamore, M.D. 498-1129

Region 6 – Mid-Coast EMS – 785-5000
e-mail: office@midcoastems.org
Bill Zito, Coordinator
Medical Director: David Ettinger, M.D. 596-8333

Maine ACEP Representative
Kevin Kendall
e-mail: kkendall@pol.net
Phone – 795-2200 Pager – 818-7948

Bio-Terrorism/WMD
If you suspect a chemical or biological agent threat,
Call your local law enforcement agency immediately.

Maine Bureau of Health Emergency Reporting and Consultation	1-800-821-5821
Maine National Guard 11th Civil Support Team (WMD)	(207) 873-9591
Maine Emergency Management Agency	(207) 624-4400

NON-EMS SYSTEM
MEDICAL INTERVENERS

Thank you for your offer of assistance.

Please be advised that these Emergency Medical Technicians are operating under the authority of the State of Maine and under protocols approved by the State of Maine. These EMS providers are also operating under the authority of a Medical Control physician and standing medical orders.

> If you are currently providing patient care, you will be relinquishing care to these EMS personnel **and their Medical Control physician.**

No individual should intervene in the care of this patient unless the individual is:

1. requested by the attending EMT, **and**
2. authorized by the Medical Control physician, **and**
3. is capable of assisting, or delivering more extensive emergency medical care at the scene.

If you are the patient's own physician, PA, or nurse practitioner, the EMTs will work with you to the extent that their protocols and scope of practice allow.

If you are not the patient's own physician, PA, or nurse practitioner, you must be a Maine licensed physician who will assume patient management and accept responsibility. These EMT's will assist you to the extent that their protocols and scope of practice allow. They will not assist you in specific deviations from their protocols without Medical Control approval. This requires that you accompany the patient to the hospital, and that their Medical Control physician is contacted and concurs.

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